

2020 Census Detailed Operational Plan for: 19. Response Processing Operation (RPO)

A New Design for the 21st Century

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1. Document Purpose

The 2020 Census Detailed Operational Plan for the Response Processing Operation (RPO) is intended for use by U.S. Census Bureau managers, staff, contractors, and other internal and external stakeholders working on the 2020 Census. The document presents the detailed operational design for the 2020 Census RPO and includes a summary of the operational processes involved, their inputs, outputs and controls, and the basic mechanisms employed to conduct the operational work.

Anticipated uses of this document include the following:

- Communication – Documents operational design details for internal and external stakeholders.
- Planning – Documents planning assumptions and key milestones.
- Staffing – Documents staffing needs and strategies.
- Design – Describes operations and flows, which inform design of IT systems, manual processes, and training.
- Development – Identifies business rules and required capabilities to be developed.
- Testing – Provides a basis for developing integrated test plans for IT systems and processes.

This document complements the 2020 Census Operational Plan, which presents the 2020 Census operational design and covers all operations required to execute the 2020 Census, starting with precensus address and geographic feature updates and ending once census data products are disseminated and coverage and quality are measured.

This document will be updated over time to reflect changes in strategies that result from 2020 Census planning, research, and testing activities.

2. Operational Overview

2.1 Operation Purpose

The Response Processing Operation (RPO) supports the three major components of the 2020 Census: pre-data collection activities, data collection activities, and post-data collection activities:

Specifically, the operation supports the following:

- Create and distribute the initial 2020 Census enumeration universe of living quarters.
- Assign the specific enumeration strategy for each living quarter based on case status and associated paradata.
- Create and distribute workload files required for enumeration operations.
- Track case enumeration status.
- Run post-data collection processing actions in preparation for producing the final 2020 Census results.
- Check for invalid or potential fraudulent returns.

2.2 Background

Processing of all census responses is at the hub of census activities. The set of tasks completed through a number of teams in previous censuses now falls under the umbrella of the Response Processing Operation for the 2020 Census. The entire operation requires many steps entailing key functionality for producing census results.

The initial stage of response processing is described as establishing where to count. Every enumerated person must be associated with a specific geographic area at the lowest level of determination, and census counts are produced for every geographic area, from the block to the entire nation. Therefore, this initial stage is key to managing both the census enumerations and the field operations where data are collected. People are counted within living quarters, and field operations are managed by the list of living quarters. Living quarters are designated as either housing units (HUs) or group quarters, which are living quarters where people who are usually unrelated share housing and are often receiving some type of service. Examples of group quarters include college dormitories, group homes, and nursing homes.

Before 1970, housing units were enumerated at the housing unit at the time of the census. This method of enumeration required only data capture and processing of the received questionnaires. The most common method of questionnaire delivery to housing units in recent censuses has been mailing of a questionnaire through the United States Postal Service (USPS) in anticipation of a household respondent mailing the completed form back through the USPS in an enumeration

methodology known as Mailout/Mailback. With Mailout/Mailback, a subsequent Nonresponse Followup (NRFU) field operation covers the enumeration of people in households that do not mail the form back by a few weeks after Census Day (traditionally April 1).

The innovations in methodology since the 1970 Census entail a more complex response processing system in order to manage the living quarters universe for mail or self-response and to track field operations in the areas where those methodologies are used. Under the modern methodology incorporating mailing of census materials, including questionnaires, the list of living quarters considered valid for the census is created before production census activities. A Census ID is created for each record in this universe.

All records from this universe are tracked though the entire census, and the universe of living quarters grows throughout the census as a result of census operations. In other words, the file containing the living quarters universe can be considered as a horizontal bar containing all the address records. This horizontal bar can grow through the census process but never shrink. Response data from mailed questionnaires, telephone responses, and field operations are collected and associated with a living quarters record or Census ID in the universe. The responses are connected to the address record corresponding to the response, as blocks added on top of the horizontal bar at the record that corresponds to the Census ID.

At the end of census data collection, the horizontal bar from Universe Control and Management contains all living quarters that were tracked through the census, whenever they entered the file. The vertical dimension of collected data contains a variety of inputs, including to the living quarters status and enumeration data. For example, a NRFU case could have a designation of vacant housing unit or that the housing unit does not exist on the ground, or with some number of people enumerated at the housing unit. For every enumerated person, there would ideally be data in every one of the data fields that corresponds to a question on the census questionnaire for that mode, such as name, age, sex. However, for every one of these people records, some of the data fields might be blank or contain data that does not make sense or is inconsistent with other data. The count of household members provided in the data field for that question might not be equivalent to the count of household members created by counting the listed household members. Additionally, there may be more than one enumeration at a household, for a variety of reasons. At some types of group quarters, it is allowable for a resident to have another address that is considered to be the person's permanent residence (usual home elsewhere) and for the resident to designate this address on the enumeration record.

The census ultimately produces an enumeration record and housing unit status for every housing unit and a set of data about the people in every occupied group quarter. Therefore, inconsistent data needs to be resolved in a post-processing phase before final counts and data files are produced. In other words, for each record on the horizontal bar, one vertical block of information about the people enumerated there is selected from the set of information on the file. After this stage, the final horizontal bar of valid living quarters is determined based on all data that were

collected during the census from all the contributing operations. Housing units found to be vacant are included along with their vacancy status, while group quarters found to be vacant are not included.

It is possible that there are still missing or inconsistent data items after this stage. In these cases, imputation procedures are required to complete the household enumeration record, using a variety of data inputs and statistical processes. When the final enumeration data are determined for all records on the horizontal bar, the resulting dataset is the Census Unedited File (CUF). The CUF provides the final census count of people and housing units. It is combined with state-level administrative records data for federally affiliated Americans serving overseas to create the apportionment distribution.

After the census count and apportionment data are produced, the next step is further postprocessing activities, such as editing of relationship and age data for consistency, editing of race and Hispanic origin responses for consistency, and coding of write-in responses. This produces the data necessary for delivery of products for redistricting. Further postprocessing consists of Disclosure Avoidance procedures, a statistical process that ensures that the final statistics released to the public do not disclose characteristics of any identifiable individual enumerated in the census.

During the 2010 Census, response processing was managed by three separate integrated system teams, focusing on the stages: universe creation and management, data capture and integration, and post-processing. With major innovations to the census design in other operations, major opportunities for innovation are required for response processing for the 2020 Census. For example, the universe of living quarters to be worked in NRFU because no sufficient self-response was received is dynamic in an automated operation. At the same time, responses received through other means such as the internet can result in the case being removed from the NRFU case list even after NRFU has begun. Also the universe of living quarters can be updated throughout the operation. As a result of some of these innovations, it has become necessary to reconsider response processing as one operation that integrates all three of the previous steps described above, rather than as a linear progression of three separate components.

Opportunities to innovate include the following:

- Use enterprise-developed tools to facilitate intelligent business decisions before and during data collection:
 - Interface with all printing systems for production of paper products.
 - Serve as the overall integration “manager” of response data collection, including internet, telephone, and paper data capture.

- Create models based on established business rules to determine the appropriate enumeration action for cases (e.g., person visit, use of administrative records and third-party data, or imputation) and assign each case to the specific mode for data collection.
- Expand the use of administrative records and third-party data in post-data collection processing activities to support improved data coverage.
- Expand the use of automated technology, communications monitoring, and improved computational modeling and data analytic techniques to provide early warnings of potentially fraudulent returns.

2.2.1 The New Design of the 2020 Census

The RPO fits into the planned design of the 2020 Census at a number of key junctures. In the step “Establish Where to Count,” RPO maintains the database of census addresses that are the census universe. For the step “Counts the Population,” RPO receives the enumeration and operational data that allow the mailed and hand-delivered printed materials to be distributed correctly, the count to be produced, and the census operations to perform their various functions. Finally, RPO creates the files that are ultimately used in the step “Release the 2020 Census results” by producing the files that are used for apportionment, redistricting, and public distribution.

2.2.2 Relevant Terms and Concepts

Below we define and describe some of the key terms that are integral to having a full understanding of this operation.

Type of Enumeration Area

Type of Enumeration Area (TEA) is a concept that has been applied to censuses since 1970, when the enumeration methodology moved away from listing and enumerating all living quarters at the same time at the time of the census. This original methodology is now known as List/Enumerate. Starting with the 1970 Census, mailout of questionnaires intended to be returned by mail became a major enumeration methodology, in conjunction with a field operation called Nonresponse Followup to get the enumerations at living quarters where the questionnaire was not returned by mail. This Mailout/Mailback methodology cannot be used everywhere because of undeliverability of mail to particular types of addresses or expected low response rates.

In addition, there is a requirement to attribute living quarters and enumerated people to particular geographic areas, in particular to a block. For these reasons, it is necessary to have a block-level address list for tracking which questionnaires were returned by mail and determining where to go to enumerate in person, which requires a block-level designation of TEA. Traditionally, TEAs have been assigned in large groups of blocks in order to streamline field assignments. Other TEAs used in previous censuses, in addition to those described above, include:

- Update/Leave: Canvass in the field to update the address list and drop off (i.e. leave) a questionnaire to be returned by mail.
- Urban Update/Leave: Canvass in the field to update the address list and drop off a questionnaire to be returned by mail in urban areas, possibly with mailable addresses but other enumeration or location challenges.
- Update/Enumerate: Canvass in the field to update the address list and enumerate at each housing unit where Mailout/Mailback is not feasible.
- Military Update/Leave: Regular Update/Leave procedures in an area designated for military use, requiring special permission for census staff to enter.
- Remote Alaska: Canvass a designated area in Alaska to list living quarters and enumerate people before the population begins a nomadic stage.

The term Mailout/Mailback has been changed to Self-Response for the 2020 Census because of the emphasis on internet self-response, a major initiative for the 2020 Census.

Living Quarters

A foundational concept for the census and for managing the census is the list of living quarters (LQs). Living quarters are either housing units or group quarters. Housing units are everything from single family homes on individual lots to apartments in a large multiunit complex, while group quarters are group living situations where residents are generally not related to one another and are often receiving some type of service. Categories of type are assigned to group quarters, whereas housing units, by definition, are living quarters that are not group quarters. It is possible for group quarters and housing units to change designations over time. For example, a group home could become college student housing, or an assisted living facility could become a nursing home, thereby transitioning from multiunit housing to group quarters.

Transitory locations are geographic areas identified to contain temporary living quarters during some times. Examples include campsites and marinas. When people reside in these areas during the census and these people do not have a usual home elsewhere, they are counted at the transitory location. The individual living quarters in which people are counted in transitory locations are considered housing units for the purposes of the census enumeration.

Universe and Workload

The list of living quarters addresses for units currently considered valid for the census is known as the universe. The universe is created before Census Day (traditionally April 1) for the purpose of printing materials for delivery to each living quarters. The universe changes throughout the census as status codes and enumeration data are gathered. Operations can add living quarters units to the universe file. It is also possible to have subuniverses, such as the universe contained

within each TEA, which will receive a distinct enumeration methodology. In general, geographic areas—such as TEAs—will have an associated address universe.

In contrast, the workload indicates which units in the universe are on the list to be worked at a given point in time. Examples include units in the Self-Response TEA for which no response has yet been received and are therefore in the NRFU workload; units in the Self-Response or Update Enumerate universe for which a response has not been received by a particular date and are, therefore, designated to receive a second mailing of some sort. The mailing is part of the forms printing workload.

Mailing Contact Strategy

The mailing contact strategy defines the mailings that will be received at different living quarters, depending initially on geographic factors like TEA or on stratification for units receiving an experimental treatment. During the census the mailings are defined based on whether a response has been received from the unit. Mailings are intended to elicit self-response or cooperation with enumerators who come to the door.

2.2.3 Response Processing in 2010

In the following we describe some of the internal steps to the entire scope of response processing as they were performed in the 2010 Census and previous censuses.

One key to managing both the census self-response and the field operations where data are collected is establishing the universe, also known as establishing where to count. Counts of living quarters and people are produced for every geographic area, from the block to the entire nation. Living quarters are designated as either HUs or group quarters, which receive different treatments for enumeration. The list of living quarters considered valid for the census is created before production census activities. In previous censuses, this list needed to be created in time to print and label a questionnaire for every HU before delivery of these questionnaires to every HU just before Census Day (April 1). With more than 130 million HUs in the initial universe for the 2010 Census, questionnaire printing took several months.

Complicating the process of universe determination is the recognition that not all areas in the country can be designated for the same type of operations for questionnaire delivery and enumeration field operations. The most common method of questionnaire delivery in recent censuses has been mailing of a questionnaire through the USPS in anticipation of a household respondent mailing the completed form back (Mailout/Mailback). A subsequent NRFU field operation covers the enumeration of people in households that do not mail the form back in within a few weeks after Census Day.

Before 1970, enumeration at all living quarters was completed at the housing unit at the time of the census. This type of enumeration would now be called List/Enumerate, and it was used in some areas up until Census 2000. In addition, before Census 2000, the list of addresses was created anew for every census. The Census Bureau created the Master Address File (MAF) using

the housing unit addresses that were enumerated through Mailout/Mailback in the 1990 Census and updating the file with mail delivery point addresses from the USPS. This allows for some uniformity and consistency in the address file between censuses, as well as its use for other Census Bureau surveys. However, since the MAF contains a full record of every address that has been collected and deemed valid at any point since its creation, an extract of only those addresses considered to be good for the census needs to be specified whenever a universe is created for a census or survey. Operations in advance of the census establish the census universe, which is maintained externally to the MAF. For the 2010 Census, this extract of the MAF was denoted as the initial universe and delivered to Universe Control and Management.

The universe of living quarters grows throughout the census as a result of census operations, and all records from the census universe are tracked through the entire census. At the same time, responses from mailed questionnaires, telephone responses, and field operations are collected and associated with the living quarters record in the universe. In the 2010 Census, this processing of responses was the task of the Data Capture and Integration operation. Universes for field operations (including telephone operations) were created based on both enumeration data received in Data Capture and universe updates from Universe Control and Management.

At the end of census data collection, the horizontal bar from Universe Control and Management contained all living quarters that were tracked through the census. The vertical dimension of Data Capture and Integration stacked onto this horizontal bar contained a variety of inputs, including to the living quarters status and enumeration data. For example, a NRFU case could have come back with a designation of vacant housing unit or that the housing unit does not exist on the ground. If, on the other hand, people were enumerated at the housing unit, for every one of these people, there should be data in every one of the data fields that corresponds to a question on the census questionnaire, such as name, age, sex. However, some of the data fields might be blank or contain data that does not make sense or is inconsistent with other data. Additionally, the count of household members provided as a separate data field might not be equivalent to the count of household members created by counting the listed household members. There may be more than one enumeration record at a household, for a variety of reasons, such as that the paper questionnaire was completed and mailed in after the NRFU universe was created. Other examples of scenarios that would result in more than one enumeration for an address record are: one household member called the Telephone Questionnaire Assistance line to complete the household enumeration without knowing that another household member had already completed it; a household member completed a Be Counted Form for the whole household or for only the individual, while another enumeration was completed through another means. For group quarters, the in-person enumeration provides the list of people to be enumerated at each group quarter that is not vacant. At some types of group quarters, it was allowable for a resident to have another address that is considered to be the person's permanent residence (usual home elsewhere) and for the resident to designate this address on the enumeration record. The

enumeration for both the group quarter and the housing unit then needed to be updated after the enumeration stage to show this status.

The process of resolving the status of every living quarters in the census universe and the enumeration status within valid living quarters is the postprocessing phase, which is what was designated as Response Processing Systems in the 2010 Census. For each record on the horizontal bar, one vertical block of information about the people enumerated there was selected from the set of information on the file. The process of selecting this one best block of enumeration data from potentially multiple forms is called the Primary Selection Algorithm (PSA).

The next step was to determine the final universe of living quarters by using all the operational and response information collected. The resulting file was called the Preliminary Census Unedited File. There may still be missing or inconsistent data after this stage. For example, a NRFU enumerator may have collected only last resort data indicating that a housing unit is occupied by two people, but no other information about these people is known. In such cases, scientific and statistical imputation procedures were required to create the housing unit status and the household enumeration, using a variety of data inputs. The result was a complete living quarters status and unique enumeration record for every living quarters record, where these statuses are consistent. The next step was to combine the state-level data for federally affiliated Americans serving overseas with this data file. These processes resulted in the creation of the CUF. The CUF provides the final census count of people and living quarters, where group quarters found to be vacant are not counted.

After the census count and apportionment are produced, there are further postprocessing activities, including editing of relationship and age data for consistency, editing of race and Hispanic origin responses for consistency, and coding of write-in responses. This produces the data that are necessary for delivery of products for redistricting. Further postprocessing consists of Disclosure Avoidance procedures, a statistical process that ensures that the final publicly released data do not disclose characteristics of any individual enumerated or living quarters included in the census.

Pre-Data Collection

In 2010, pre-data collection activities were managed by the Universe Control and Management (UCM) Production Operation (UPO). UPO controlled and tracked enumeration and data capture of census results using a database of census addresses and related information. More specifically, the database used a dynamic, multi-service system designed to define, control, and track the enumeration and data capture processing and census activities. UPO created the Initial Universe Enumeration Control Table of the database based on the Initial UCM Universe supplied by the Geographic Data Processing Production Operation (GDP). The UPO supported Data Collection

operations by monitoring responses collected by Data Capture and Integration (DCI) and case status information reported by the Data Collection operations. UPO also provided support for downstream post capture processing operations within the Response Processing Operation (RPO) and Count Review Operation (CRO), as well as providing final counts and status information to GDP.

Data Collection

The DCI Operation Group was comprised of three data capture operations; Data Capture and Integration – Decennial Response Integration System (DCI-DRIS), Data Capture – Non DRIS, and Geographic Data Capture (GDC). The DCI-DRIS Operation utilizes the DRIS system and resources. The operation was responsible for the capture and conversion of respondent data from paper questionnaires received from mailback and paper-based field operations as well as questionnaire inputs from telephone-based questionnaire operations. DCI-DRIS was responsible for processing two groups of paper questionnaire forms: USPS return and field operation returns. The 2010 Census DRIS implemented several measures to ensure the quality of census results. The Data Capture – Non DRIS operation was responsible for data capture from electronic and paper sources that were not handled within the DCI-DRIS Operation. The GDC Operation was responsible for the data capture and conversion of paper address registers and map spot and feature data derived from the paper-based enumeration field operations.

Post-Data Collection

Post-Data collection activities were managed by the Response Processing Production Operation (RPO). RPO processed integrated response data provided by the DCI operation. The Response Processing System (RPS) received questionnaire data from paper data capture and telephone calls. The data were then interfaced to RPO to begin post-capture response processing operations. RPO performed unduplication, matching, editing, and coding of files that were used by other operations such as UPO, GDP, Census Coverage Measurement (CCM) operations, Demographic Analysis, Archiving, Data Products and Dissemination, and Non-ID Processing. These files included the CUF, Census Edited File (CEF) and the Hundred Percent Detail File (HDF). RPO was responsible for processing the integrated response data from stateside and Puerto Rico as well as initial processing activities for Island Areas.

2.2.4 Changes Introduced in 2020

Opportunities to innovate include the following:

The Response Processing Operation plans to take advantage of new technology and data sources to support optimizing self-response and the use of administrative records and third-party data. In an effort to optimize self-response, RPO will use enterprise-developed tools to facilitate intelligent business decisions before and during data collection. To optimize self-response, the enterprise-developed operational control system will serve as the overall integration “manager”

of response data collection for internet, telephone, and paper to conduct mode-level case assignment activities. A single operational control system will manage the status of the entire universe daily with data and updates received from all operations, including Internet Self-Response, Paper Data Capture of mailed paper questionnaires, Census Questionnaire Assistance for inbound calls, Nonresponse Followup, Group Quarters, Update Enumerate, and smaller operations. Daily updates from the operational control system will also interface with all printing systems for production and distribution of paper products (i.e., questionnaires, reminder postcards, etc.). This will create a more efficient mailing strategy and eliminate the need for costly blanket mailings and minimize future mailings to housing units that have already provided a response.

Administrative records (AdRec) Modeling and AdRec Enumeration use libraries from past surveys, censuses, and other sources of administrative records and third-party data. Administrative records and third-party data create models based on established business rules to determine the appropriate course of enumeration action for cases. However, RPO's primary use of administrative records and third-party data will support reducing the need to conduct expensive in-person followup with those households by applying models using AdRec Modeling. AdRec Modeling applies established business rules to determine the appropriate course of enumeration action for cases and assign each case to the specific mode. Post-data collection activities include using administrative records and third-party data to supplement response data using AdRec Enumeration methodology. AdRec Enumeration may be used in whole or in part where there is high confidence during postprocessing to enhance imputation processes and potentially PSA. Use of administrative records will also support editing and coding, imputation, fraud detection, and coverage improvement.

2.3 Design Overview

The sections below present the high-level design for the RPO. Please refer to the 2020 Census Operational Plan for a complete inventory of design decisions for all 2020 Census operations.

The RPO will create and distribute the initial 2020 Census enumeration universe, assign the specific enumeration strategy for each living quarter based on case status and associated paradata, create and distribute workload files required for enumeration operations, track case enumeration status, run post-data collection processing actions in preparation for producing the final 2020 Census results, and ensure all self-response data collected are analyzed for attempted fraud.

2.3.1 High-Level Operational Design

The design of the RPO Operation for the 2020 Census includes three major operational activity areas:

- RPO Pre-Data Collection Phase
- RPO Data Collection Phase
- RPO Post-Data Collection Phase

Each of these major activity areas is summarized below. Together, these activities represent the complete set of work that needs to be performed to conduct this operation.

RPO Pre-Data Collection Phase

The pre-data collection phase of RPO's operation creates and populates a respondent data collection universe of LQs for use during the later data collection and post-data collection phases of RPO's operation. This universe contains census addresses and geographic attributes for all known HUs and group quarters within the boundaries of the United States and Puerto Rico. Each known LQ in the universe is populated with address information, a Census ID, geocoding information (assignment to a block), case management information, and a contact strategy. The Census ID will be used during later phases to associate a particular set of response data back to a specific LQ.

RPO Data Collection Phase

For data collection activities, the Response Processing operation starts with receiving and managing updates to the initial 2020 Census universe. These updates come from various address frame update operations including Address Canvassing, Local Update of Census Addresses (LUCA), Federal-State Cooperative Program for Population Estimates, and some Geographic Programs activities. The results from the address updates establish a revised 2020 Census enumeration universe. The Response Processing operation uses this universe to control and track questionnaire response data. As responses are received, cases containing a Census ID are designated in the universe as received. Cases returned without Census IDs are sent to the Non-ID Processing operation for matching and geocoding. All cases are returned to the Response Processing operation, and those that were successfully resolved are removed from further enumeration followup.

RPO Post-Data Collection Phase

The RPO post-data collection phase begins with processing activities in preparation for final enumeration universe reconciliation. In an effort to reduce costs associated with field followup operations and to ensure optimal coverage, response data cases determined as having sufficient administrative records information for enumeration are considered enumerated. Administrative records are also used to support resolving final response case record status issues associated with producing the final census output files; DRF, CUF, CEF and Microdata Detail File (MDF). RPO is also responsible for leading a review of these files with designated subject matter experts.

The post-data collection phase is under development at this time. While shown at a high level in the current document, the details of this phase will be included in a subsequent release of this document.

The hierarchy of activities for RPO through the data collection phase is provided in Appendix C in the form of an Activity Tree. In the Activity Tree, each major operational activity area listed

above is numbered and then decomposed into a numbered set of subactivities, some of which are further decomposed into more detailed numbered subactivities or steps.

For a full description of the operational subactivities that comprise RPO, see the Detailed Process Description discussions in Sections 3 and 4 below.

Figure 1 is a top-level Business Process Model (BPM) that shows these Level 1 activity areas. BPMs for the 2020 Census follow industry-standard Business Process Model and Notation (BPMN). An explanation of how to read the BPMN notations and a full sized copy of all of the BPMN diagrams for this operation are provided under separate cover.

This top-level BPM serves as the Context Model for RPO.



2020 Census 19. Response Processing Operation (RPO)

Purpose: Create and distribute the initial 2020 Census enumeration universe of living quarters; assign the specific enumeration strategy for each living quarter based on case status and associated paradata; create and distribute the workload files required for enumeration operations; track case enumeration status; run post data collection processing actions in preparation for producing the final 2020 Census results; and check for invalid or potentially fraudulent returns.

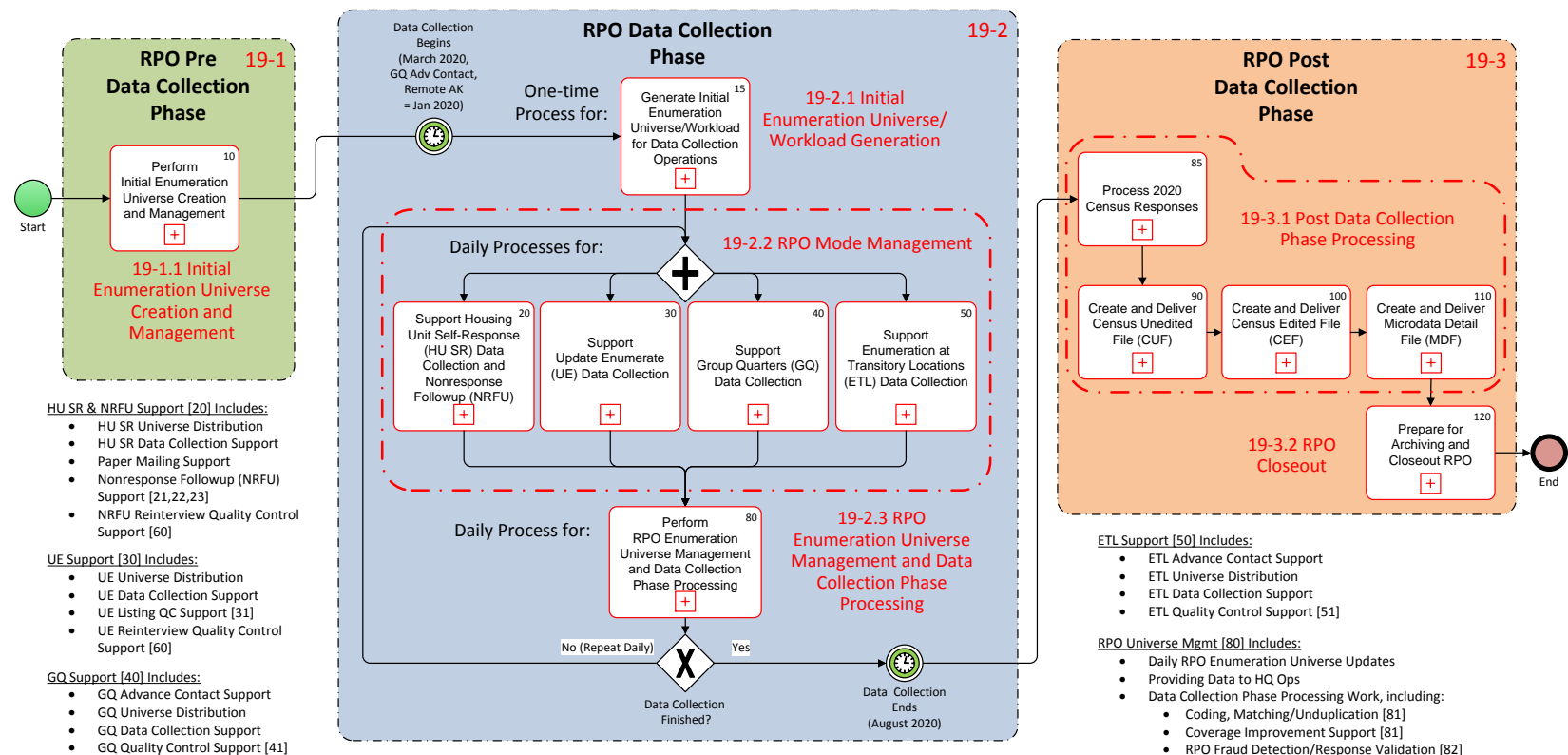


Figure 1: Top-Level Business Process Model, Context Model for RPO

2.4 RPO Data Flow and Operational Influences

Note to Reader: An Integrated Operations Diagram (IOD) for the data collection operations is being developed and will not be completed until later in fiscal year 2017. This diagram, which will show the flow of information among all of the data collection operations, is intended to help the reader understand how this operation fits into the bigger picture. The Data Collection IOD will be added as Figure 2 in the next release of this document.

<Data Collection IOD to be inserted here at a later date>

Figure 2: 2020 Census Data Collection - Integrated Operations Diagram (IOD)

2.5 RPO Operational Context

As discussed in the previous section, the RPO activities described above are conducted within the context of other 2020 Census operations and other programs or data sources that are external to the 2020 Census Program. Figure 3 shows these interactions using a more formal representation known as an Integrated Definition, Level 0 (IDEF0) model. Referred to as a “Context Diagram,” an IDEF0 model shows the boundary of the operational process, the operational activities it contains, and the information exchanged with its neighbor operations (or other entities) as well as the resources (mechanisms) needed to conduct the operational work. A Context Diagram is different from the BPMN Context Model shown in Section 2.3. The Context Diagram depicts the boundaries of the operation or activity and the interfaces between the operation or activity and other operations and activities with which it is associated, whereas the BPMN Context Model displays the high-level activities within the operation and relationships between them.

The yellow box in the center of the IDEF0 model lists the major operational activity areas for the operation, numbered as given in the RPO Activity Tree in Appendix C. Specific Information Exchanges (IE) are shown in different colored boxes to represent the Inputs (green boxes on left side), Outputs (orange boxes on right side), Controls (purple boxes on top), and Mechanisms (blue boxes on the bottom). Boxes to the left of the Inputs indicate the *Provider* of the inputs to the operation (typically another 2020 Census operation or an external source). The Provider of the Controls is noted in the box itself. Boxes to the right of the Outputs indicate the *Receiver* of the outputs (typically another 2020 Census operation or external entity). Each Information Exchange has a name and a unique number for identification purposes.

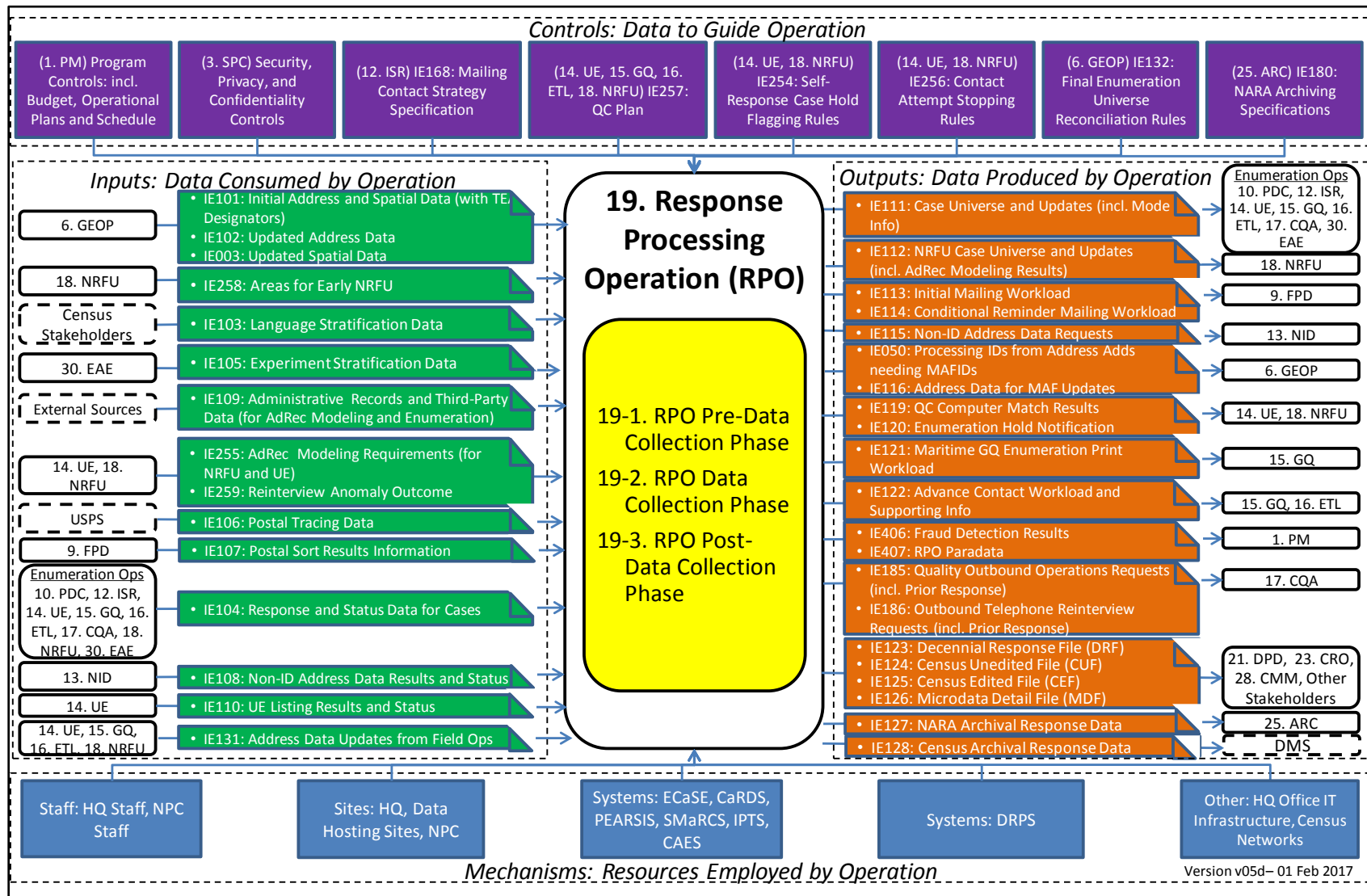


Figure 3: Response Processing Operation (RPO) Context Diagram

As discussed in Section 2.3.1, RPO is divided into three phases: RPO Pre-Data Collection Phase, RPO Data Collection Phase, and RPO Post-Data Collection Phase. For detailed descriptions of the Inputs, Controls, Outputs, and Mechanisms used by the three phases of the RPO, refer to Sections 3.2 and 4.2.

2.6 RPO Design Assumptions

- RPO will use the enterprise-developed system solutions Control and Response Data System (CaRDS) for universe creation and the Operational Control System (OCS) for data collection control and management.
- RPO will use the Decennial Response Processing System (DRPS) for final data processing.
- The Fraud Detection working group led by Non-ID Processing will ensure that all self-response data collected is analyzed for fraud.
- Response Translation will be required for all Internet or paper write-in responses for selected languages other than English and Spanish.

2.7 Outstanding Design Issues

- RPO is working to update and finalize requirements for support of AdRec modeling and AdRec enumeration.
- RPO is working to update and finalize requirements for support of Coverage Improvement (CI).
- RPO is working to determine final processes for data reviews.
- Details of the interactions between Evaluations and Experiments operation (EAE) and RPO during the data collection and post-data collection phases are still being worked out and are not depicted in the BPMs.
- Details about how Disclosure Avoidance will be processed are under discussion. This issue impacts the RPO BPMs, the Data Products and Dissemination process and solutions, and the Redistricting Data Program.

3. RPO Pre-Data Collection Phase [RPO 19-1]

This section describes the details of how the RPO Pre-Data Collection Phase [RPO 19-1] will be conducted in the 2020 Census. An overview of the activity is presented, followed by a Context Diagram for this activity with its associated inputs, controls, outputs, and mechanisms. Each subactivity is then described in detail, using BPMN to depict the steps in the activity and the key information flows. Refer to the Activity Tree in Appendix C for a list of all of the major operational activities and subactivities associated with the RPO.

3.1 Design Overview

Figure 4 shows the BPM for the RPO Pre-Data Collection Phase [RPO 19-1] activity area (area within the shaded gray rounded rectangle) and its constituent activities within the overall context of the RPO.

Pre-Data Collection Mission

The pre-data collection phase of RPO creates and populates a respondent data collection universe of living quarters (LQs) for use during the later data collection and post-data collection phases of RPO. This universe contains census addresses and geographic attributes for all known housing units (HUs) and group quarters within the boundaries of the United States and Puerto Rico. Each known LQ in the universe is populated with address information, a Census ID, geocoding information, case management information, and a contact strategy. The Census ID will be used during later phases to associate a particular set of response data back to a specific LQ.

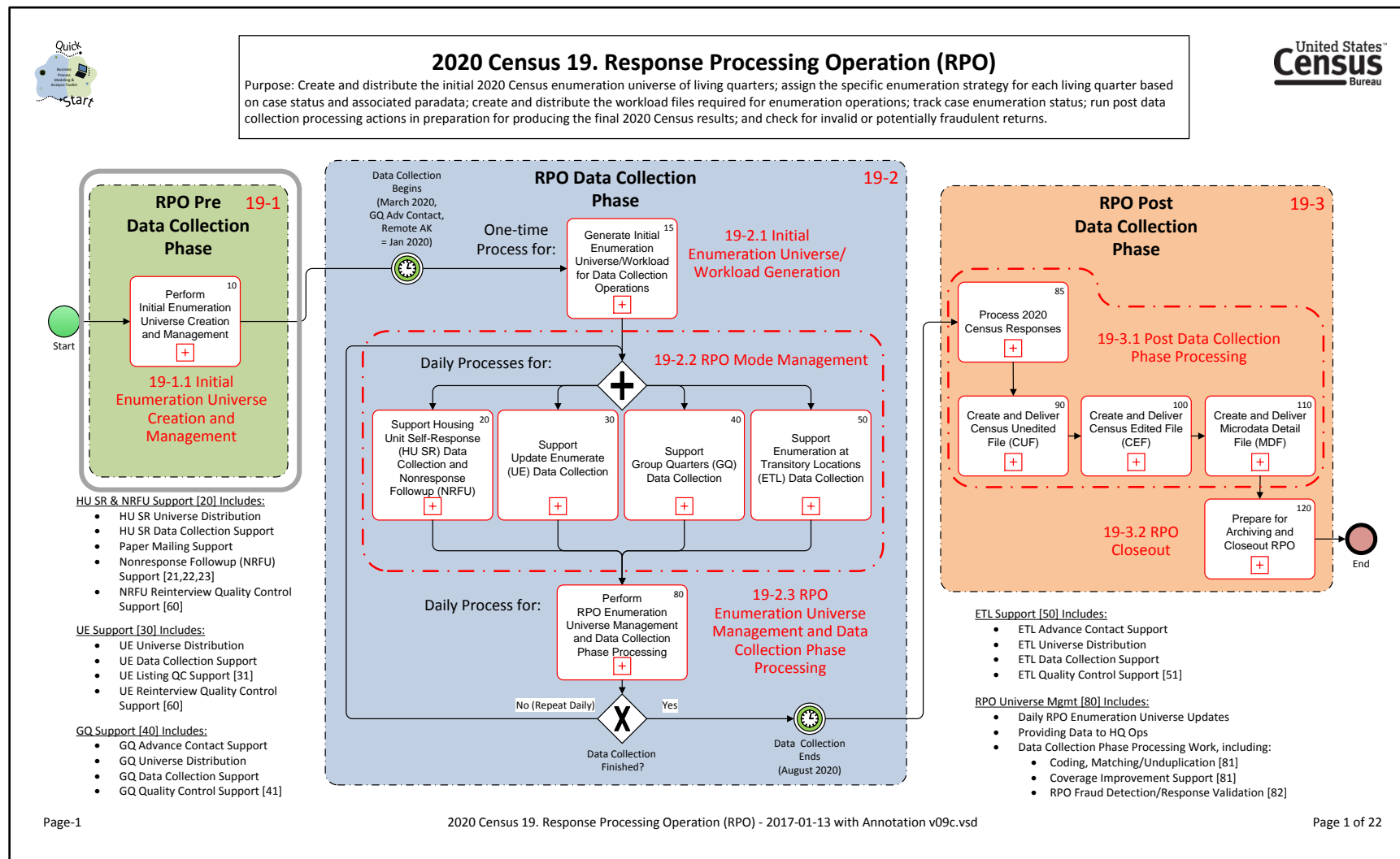


Figure 4: RPO Pre-Data Collection Phase [RPO 19-1] within Top-Level RPO Context Model

The RPO Pre-Data Collection Phase Operational Activity [RPO 19-1] is comprised of one Activity Area.

- Initial Enumeration Universe Creation and Management [RPO 19-1.1].

This activity area involves receiving universe inputs from the Geographic Programs operation and other sources, creating the universe, delivering it to the Universe Management Function with RPO and sending workload information to the Forms Printing and Distribution operation (FPD) for pre-data collection self-response paper mailings. Subsequent sections describe this activity in more detail.

3.2 Operational Context

Figure 5 is a top-level context diagram for the RPO Pre-Data Collection Phase represented as an IDEF0 Model. Note that the major operational activity described above is shown in the yellow box in the center of the diagram. Also note that the Information Exchanges (IEs) internal to the RPO are identified with RPO as the prefix, e.g., RPO01.

Not all census operations begin on the same day. Different census operations each need their own version of the overall data collection universe.

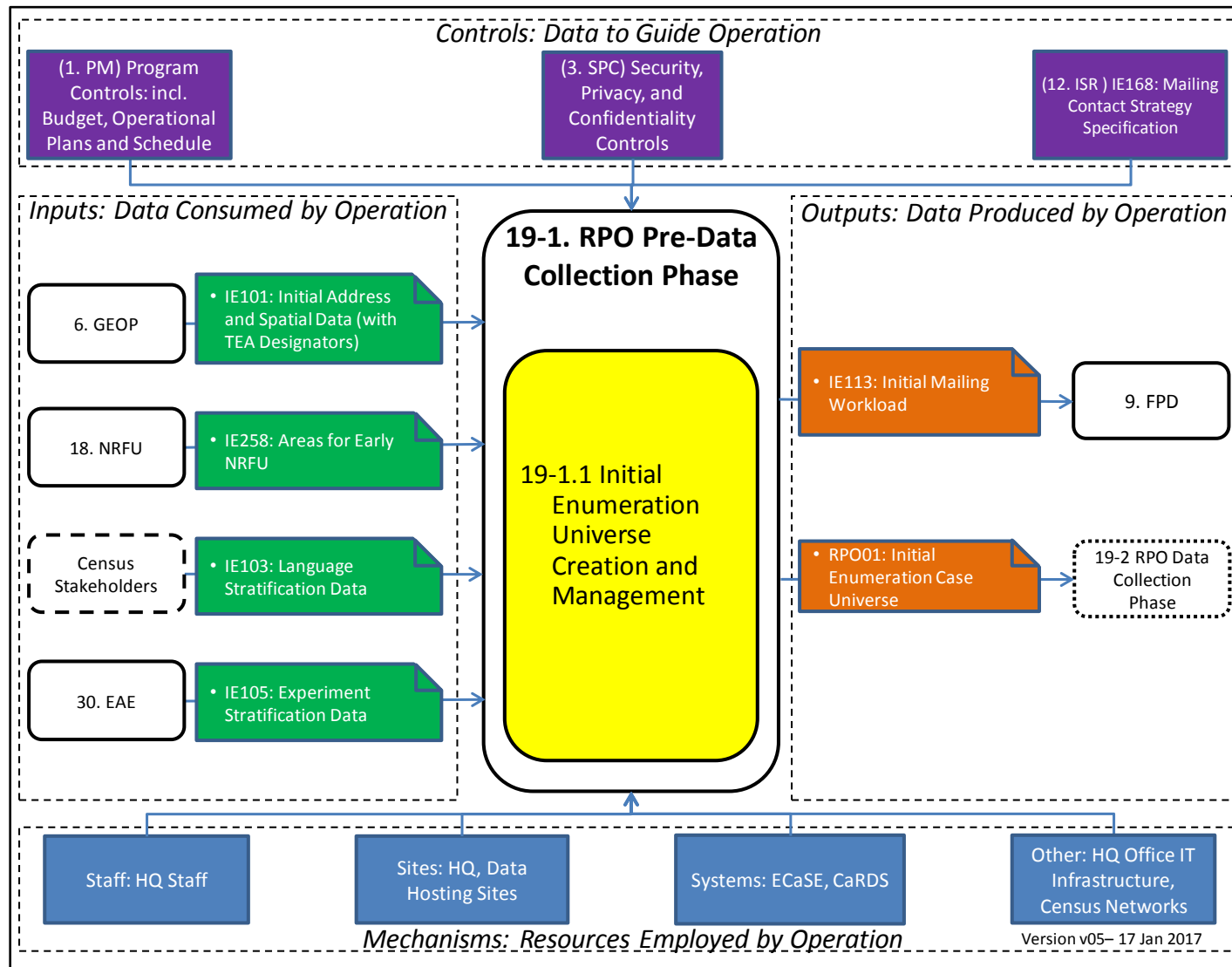


Figure 5: Context Diagram for RPO Pre-Data Collection Phase Activity

3.2.1 Inputs

Inputs are the data that are consumed by the operation. The inputs define the amount of operational work that needs to be performed.

Table 1 lists the inputs to the RPO Pre-Data Collection Phase.

Table 1: RPO Pre-Data Collection Phase Inputs

Provider	Information Exchange	Description
6. Geographic Programs Operation (GEOP)	IE101: Initial Address & Spatial Data	Address and spatial data from MAF/TIGER. GEOP defines the initial geography of where counting will be done. For the decennial census, this geography covers all LQs within the boundaries of the United States and Puerto Rico. GEOP provides RPO with addresses, spatial data, Type of Enumeration Area (TEA) designators and IDs from the MAF/TIGER system (known as MAFIDs) where known.
18. Nonresponse Followup Operation (NRFU)	IE258: Areas for Early NRFU	Areas such as those with high concentrations of off-campus college housing where NRFU must be performed early because the residents are unlikely to be there during the standard NRFU timeframe. Rather than waiting until late April or May to start trying to collect from areas with high proportions of off-campus student residents, NRFU instead has an Early NRFU operation where they try to collect responses while schools are still in session. NRFU provides the data, and at the start of Early NRFU, receives a data collection universe containing just those targeted LQs where the residents are unlikely to be available later.

Provider	Information Exchange	Description
Census Stakeholders	IE103: Language Stratification Data	Language data for stratifying the universe based on the need for bilingual English and Spanish forms. Census Stakeholders analyze language and population data to determine where bilingual forms are appropriate to the population.
30. Evaluations and Experiments Operation (EAE)	IE105: Experiment Stratification Data	Data for stratifying the universe based on Census Experimental Program requirements. EAE designs and performs experiments during the census as the first step in planning for the 2030 Census. A sample of LQs will be selected for each of the experiments.

3.2.2 Controls

Controls are the data that guide the behavior of the operation. They are not consumed by the operation, but rather they provide guidance, models, limits, criteria, cutoff dates, or other information that controls the way in which the operational work is performed.

Table 2 lists the controls for the RPO Pre-Data Collection Phase.

Table 2: RPO Pre-Data Collection Phase Controls

Provider	Information Exchange	Description
1. Program Management Operation (PM)	Program Controls	Program control information including: <ul style="list-style-type: none"> Budget Operational plans and schedule

Provider	Information Exchange	Description
3. Security, Privacy, and Confidentiality Operation (SPC)	Security, Privacy, and Confidentiality Controls	Laws, policies, regulations, and guidelines related to physical security, IT security, data security and privacy and confidentiality impacts, analyses, and processes. These include but are not limited to Title 13, Title 26, and other laws and policies related to protection of personally identifiable information.
12. Internet Self-Response Operation (ISR)	IE168: Mailing Contact Strategy Specification	<p>Business rules that define the sequence and timing of materials to be mailed to housing units inviting and reminding people to respond. The contact strategy rules are designed to encourage self-response via the Internet.</p> <p>These rules also apply to additional mailings sent to nonresponding housing units based on administrative records modeling.</p> <p>During pre-data collection, these rules are used by RPO to create the initial mailing workload for self-response and Update Enumeration (UE) TEAs.</p> <p>ISR provides RPO with specifications to assign mailing contact strategies. Different populations can respond in different ways to the same mailing. For example, a mailing encouraging a respondent to use the Internet may not work well for a population with low Internet usage. RPO uses these strategies when creating the initial data collection universes for self-response and UE TEAs.</p>

3.2.3 Outputs

Outputs are the data produced by the operation. The outputs constitute the results of operational work that has been performed. Outputs produced may be used as inputs or controls to other operations.

Table 3 lists the outputs from the RPO Pre-Data Collection Phase.

Table 3: RPO Pre-Data Collection Phase Outputs

Consumer	Information Exchange	Description
9. Forms Printing and Distribution Operation	IE113: Initial Mailing Workload	The set of addresses that are to be mailed 2020 Census materials before the start of data collection. This includes all addresses in the Self-Response TEA and all mailable addresses in the UE TEA. The workload includes the timing, sequence, and type of paper material (letter, questionnaire, language, etc.) to be included in the mailing for each address.
19-2 RPO Data Collection Phase	RPO01: Initial Enumeration Case Universe	The initial set of addresses for all known living quarters that are to be enumerated for the 2020 Census. Each operation receives an initial data collection universe that is appropriate to that operation.

3.2.4 Mechanisms

Mechanisms are the resources (people, places, and things) that are used to perform the operational processes. They include Staff Resources, Infrastructure Sites, Systems, and other Technology Infrastructure.

Staff Resources

Table 4 identifies the Staff Resources employed for the RPO Pre-Data Collection Phase.

Table 4: Staff Resources used within RPO Pre-Data Collection Phase

Staff Resources	Description/Role
HQ Staff	Headquarters (HQ) staff who manage the RPO and coordinate activities.

Infrastructure Sites

Table 5 identifies the Infrastructure Sites employed for the RPO Pre-Data Collection Phase.

Table 5: Infrastructure Sites for RPO Pre-Data Collection Phase

Infrastructure Site	Description/Role
HQ	Site for office work conducted in support of the RPO.
Data Hosting Sites	Secure facilities that are used to host 2020 Census data and perform associated data processing.

Systems and other Technology Infrastructure

Table 6 identifies the Systems employed for the RPO Pre-Data Collection Phase.

Table 6: Systems used within RPO Pre-Data Collection Phase

System	Description
Enterprise Censuses and Surveys Enabling (ECaSE) Platform	Enterprise solution that supports 2020 Census operational work. For RPO, ECaSE is used to create the universe for all enumeration operations and maintain operational workloads as data collection proceeds (ECaSE-OCS).
Control and Response Data System (CaRDS)	The CaRDS system is used to create the Enumeration Universe and associated control information, which is provided to the enumeration operation via ECaSE-OCS.

Other Technology Infrastructure employed for the RPO Pre-Data Collection Phase includes:

- HQ Office IT Infrastructure for conducting RPO Pre-Data Collection Phase operational work.
- Census network connectivity for data transmission between operational systems and operational sites.

3.3 Initial Enumeration Universe Creation and Management [RPO 19-1.1]

The initial enumeration universe includes address and geographic attributes for all known living quarters within the boundaries of the United States, including Puerto Rico.

- RPO receives universe input data.

- RPO creates the initial enumeration universe of all living quarters (LQ) to be included in the frame.

Figure 6 shows the BPM for the Initial Enumeration Universe Creation and Management [RPO 19-1.1] activity area and its constituent activities.

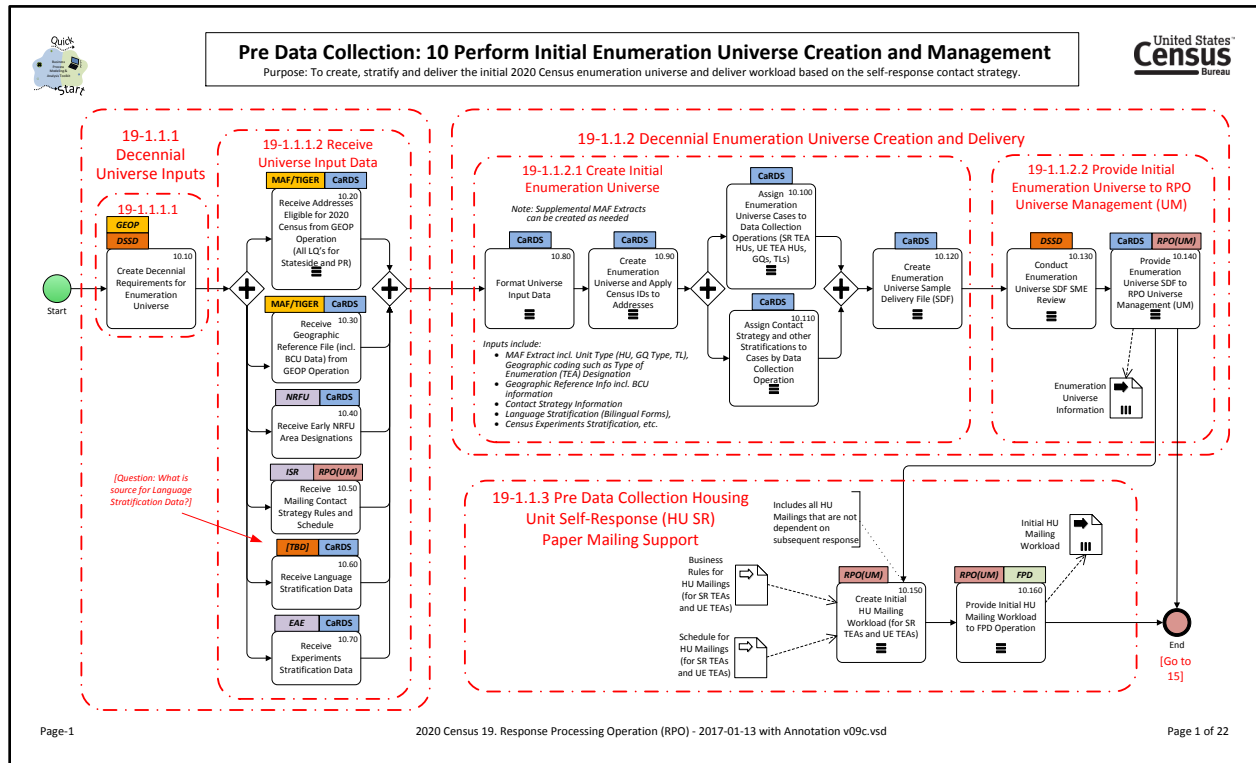


Figure 6: Initial Enumeration Universe Creation and Management [RPO 19-1.1] Constituent Activities

The Initial Enumeration Universe Creation and Management operational subactivity is subdivided into the following constituent activities.

- Initial Enumeration Universe Creation and Management [RPO 19-1.1]
 - Decennial Universe Inputs [RPO 19-1.1.1].
 - Decennial Enumeration Universe Creation and Delivery [RPO 19-1.1.2].
 - Pre-Data Collection Housing Unit Self-Response (HU SR) Paper Mailing Support [RPO 19-1.1.3].

RPO supports the creation, stratification, and delivery of the initial 2020 Census enumeration universe and delivers workload based on the self-response contact strategy.

RPO receives and integrates inputs from a number of sources in order to create the initial data collection universe needed for each data collection operation.

Subsequent sections describe the Initial Enumeration Universe Creation and Management operational subactivities in detail.

3.3.1 Decennial Universe Inputs [RPO 19-1.1.1]

The “Decennial Universe Inputs” operational subactivity is subdivided into the following constituent activities.

- Decennial Universe Inputs [RPO 19-1.1.1]
 - Create Decennial Requirements for Enumeration Universe [RPO 19-1.1.1.1].
 - Receive Universe Input Data [RPO 19-1.1.1.2].

A detailed view of the constituent activities that make up the “Decennial Universe Inputs” operational subactivity is given in Figure 7 below.

Customer requirements provided to the Geography Division (GEO) and pre-data collection specifications from the Decennial Statistical Studies Division (DSSD) staff are used as inputs to define the decennial requirements.

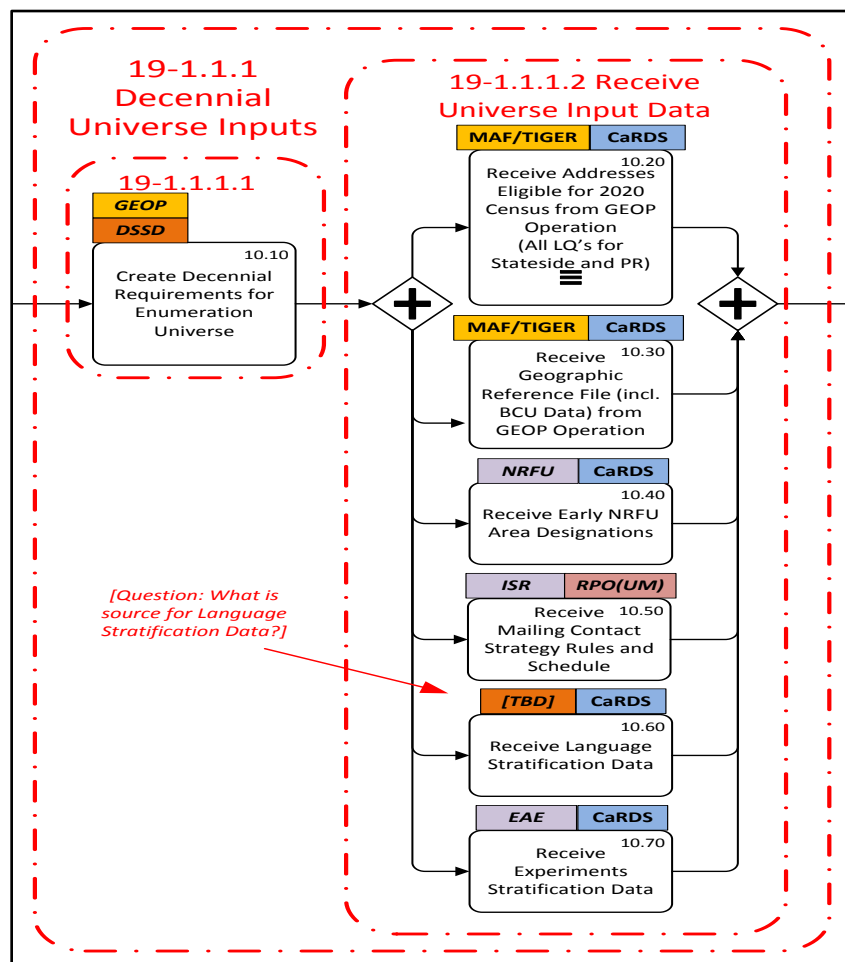


Figure 7: Decennial Universe Inputs

3.3.1.1 Create Decennial Requirements for Enumeration Universe [RPO 19-1.1.1.1]

Refer to Figure 7 for a view of the activity that makes up the “Create Decennial Requirements for Enumeration Universe” operational subactivity.

Decennial requirements are used to identify criteria for identifying addresses eligible for the enumeration universe.

3.3.1.2 Receive Universe Input Data [RPO 19-1.1.1.2]

Refer to Figure 7 for a view of the activity that makes up the “Receive Universe Input Data” operational subactivity.

MAF/TIGER, NRFU, ISR, and EAE deliver inputs (e.g., address composition, extract of addresses from the MAF, contact frame supplement, experimental and evaluation program sampling ID, Census ID and processing ID structure, language stratum input file, sample, workload management and NRFU contact strategy specifications) for CaRDS to format the universe.

3.3.2 Decennial Enumeration Universe Creation and Delivery [RPO 19-1.1.2]

The “Decennial Enumeration Universe Creation and Delivery” operational subactivity is subdivided into the following constituent activities.

- Decennial Enumeration Universe Creation and Delivery [RPO 19-1.1.2]
 - Create Initial Enumeration Universe [RPO 19-1.1.2.1].
 - Provide Initial Enumeration Universe to RPO Universe Management (UM) [RPO 19-1.1.2.2].

A detailed view of the constituent activities that make up the “Decennial Enumeration Universe Creation and Delivery” operational subactivity is given in Figure 8 below.

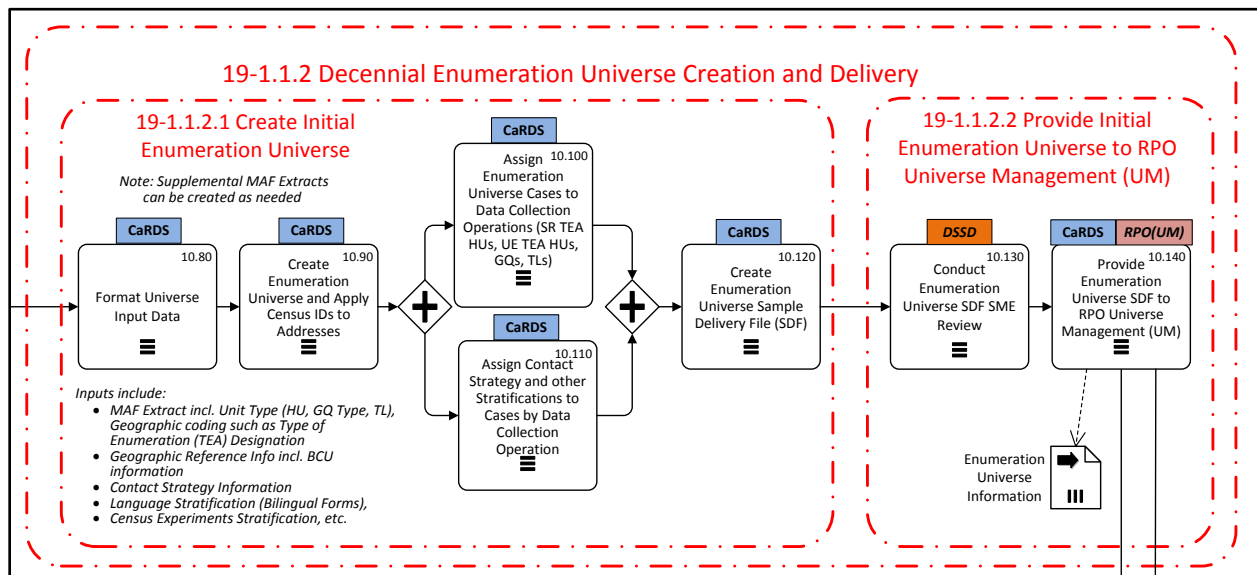


Figure 8: Decennial Enumeration Universe Creation and Delivery

3.3.2.1 Create Initial Enumeration Universe [RPO 19-1.1.2.1]

Refer to Figure 8 for a view of the activity that makes up the “Create Initial Enumeration Universe” operational subactivity.

Addresses are standardized, census IDs are applied to addresses, and enumeration cases are assigned to each data collection operation based on contact strategy to create the Sample Delivery File (SDF).

3.3.2.2 Provide Initial Enumeration Universe to RPO Universe Management (UM) [RPO 19-1.1.2.2]

Refer to Figure 8 for a view of the activity that makes up the “Provide Initial Enumeration Universe to RPO Universe Management (UM)” operational subactivity.

RPO will conduct a SME review of the SDF with DSSD. This will ensure that the requirements of the sample specification are met before delivering the SDF to the ECaSE-OCS for universe management.

3.3.3 Pre-Data Collection Housing Unit Self-Response (HU SR) Paper Mailing Support [RPO 19-1.1.3]

A detailed view of the constituent activities that make up the “Pre-Data Collection Housing Unit Self-Response (HU SR) Paper Mailing Support” operational subactivity is given in Figure 9 below.

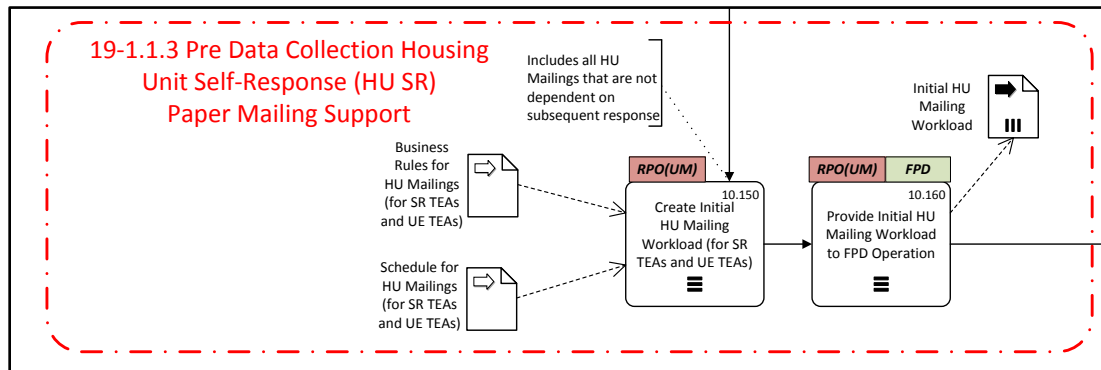


Figure 9: Pre-Data Collection Housing Unit Self-Response (HU SR) Paper Mailing Support

RPO supports optimized self-response by applying business rules and schedules to create an initial workload for FPD for mailing notifications and other supporting information to housing units.

3.4 Specific Operational Assumptions

- The Response Processing Operation will use the enterprise-developed system solutions Control and Response Data System CaRDS for universe creation.

4. RPO Data Collection Phase [RPO 19-2]

This section describes the details of how the RPO Data Collection Phase [RPO 19-2] will be conducted in the 2020 Census. An overview of the activity is presented followed by a context diagram for this activity with its associated inputs, controls, outputs, and mechanisms. Each subactivity is then described in detail, using BPMN to depict the steps in the activity and the key information flows. Refer to the Activity Tree in Appendix C for a list of all of the major operational activities and subactivities associated with the RPO operation.

4.1 Design Overview

Figure 10 shows the BPM for the RPO Data Collection Phase [RPO 19-2] activity area (area within the shaded gray rounded rectangle) and its constituent activities within the overall context of the RPO Operation.

Data Collection Mission

For data collection activities, the Response Processing operation starts with receiving and managing updates to the initial 2020 Census universe. These updates come from various address frame update operations including Address Canvassing, LUCA, Federal-State Cooperative Program for Population Estimates, and some Geographic Programs activities. The results from the address updates establish a revised 2020 Census enumeration universe. The Response Processing operation uses this universe to control and track questionnaire response data. As responses are received, cases containing a Census ID are designated as received in the universe. Cases returned without Census IDs are sent to the Non-ID Processing operation for matching and geocoding. All cases are returned to the Response Processing operation, and those that were successfully resolved are removed from further enumeration followup.

For nonresponding cases, the Response Processing operation supports the NRFU operation by facilitating administrative records modeling techniques to determine the most effective and efficient enumeration strategy, including removal of vacant and deleted cases prior to followup, provision of a “best time to contact” recommendation to be used by the operational control system, and removal of cases from the workload based on established “stopping rules” to maximize efficiency in the NRFU operation.

Additionally, the response processing operation provides response collection support to UE, Group Quarters operation (GQ), and Enumeration at Transitory Locations operation (ETL). In general, the activities include creating and managing the enumeration workloads and followup universes, as well as the enumeration and, as applicable, address listing quality control functions.

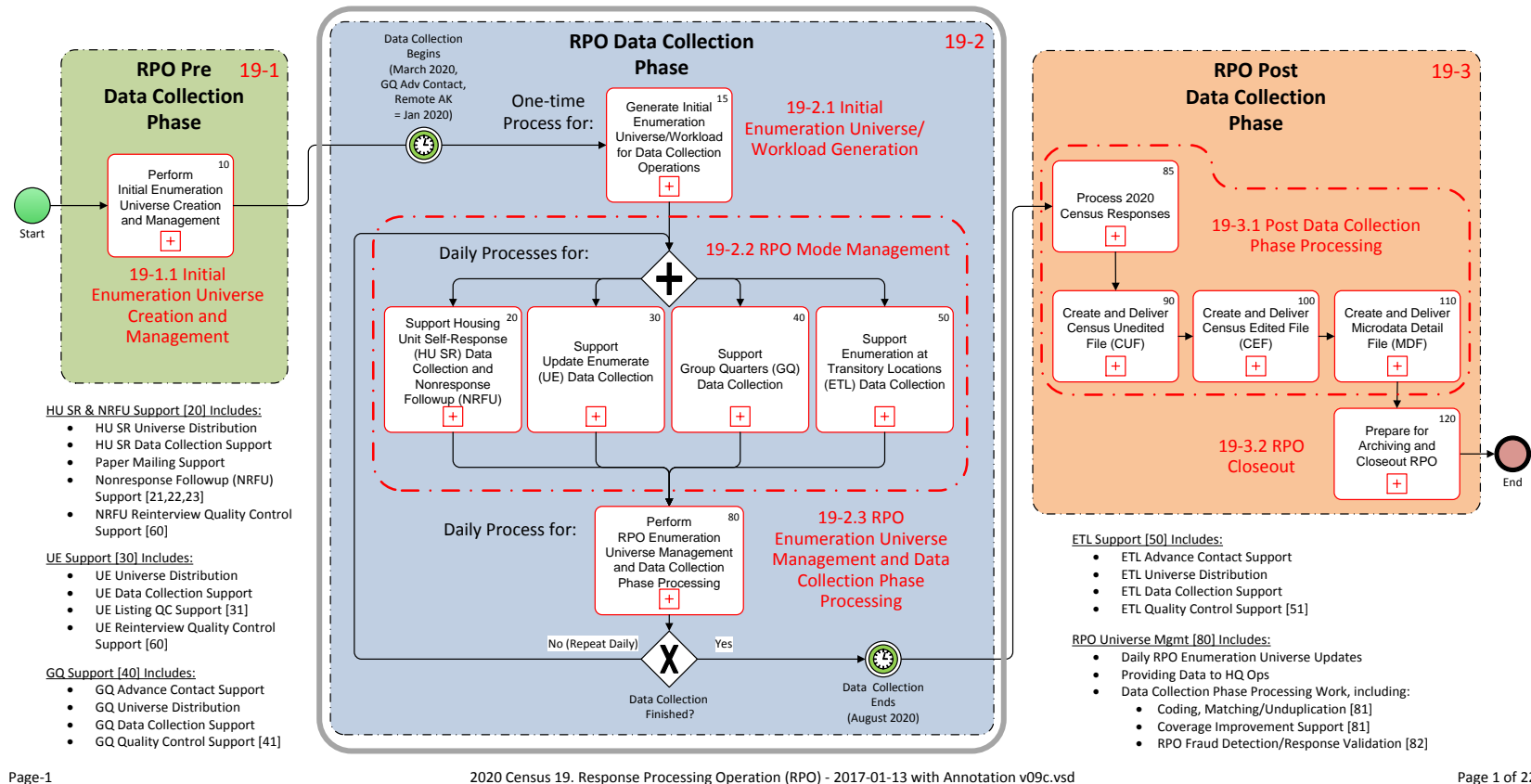


Figure 10: RPO Data Collection Phase [RPO 19-2] within Top-Level RPO Context Model

The RPO Data Collection Phase Activity [RPO 19-2] is subdivided into the following subactivities:

- Initial Enumeration Universe/Workload Generation [RPO 19-2.1].
- RPO Mode Management [RPO 19-2.2].
 - Support Housing Unit Self-Response (HU SR) Data Collection and Nonresponse Followup (NRFU) [RPO 19-2.2.1].
 - Support Update Enumerate (UE) Data Collection [RPO 19-2.2.2].
 - Support Group Quarters (GQ) Data Collection [RPO 19-2.2.3].
 - Support Enumeration at Transitory Locations (ETL) Data Collection [RPO 19-2.2.4].
- RPO Enumeration Universe Management and Data Collection Phase Processing [RPO 19-2.3].

Subsequent sections describe the RPO Data Collection Phase operational activities in detail. RPO's support for quality control of listers and enumerators is discussed separately in Section 4.8.

4.2 Operational Context

Figure 11 is a top-level context diagram for the RPO Data Collection Phase represented as an IDEF0 Model. Note that the major operational activities described above are listed in the yellow box in the center of the diagram. Also note that the Information Exchanges internal to the RPO Operation are identified with RPO as the prefix, e.g. RPO01.

During the Data Collection phase, RPO prepares specific data collection universes for operations including mailings to elicit self-response, NRFU, CI, and Field Verification (FV). RPO creates and delivers the specific initial data collection universe to each operation according to that operation's schedule.

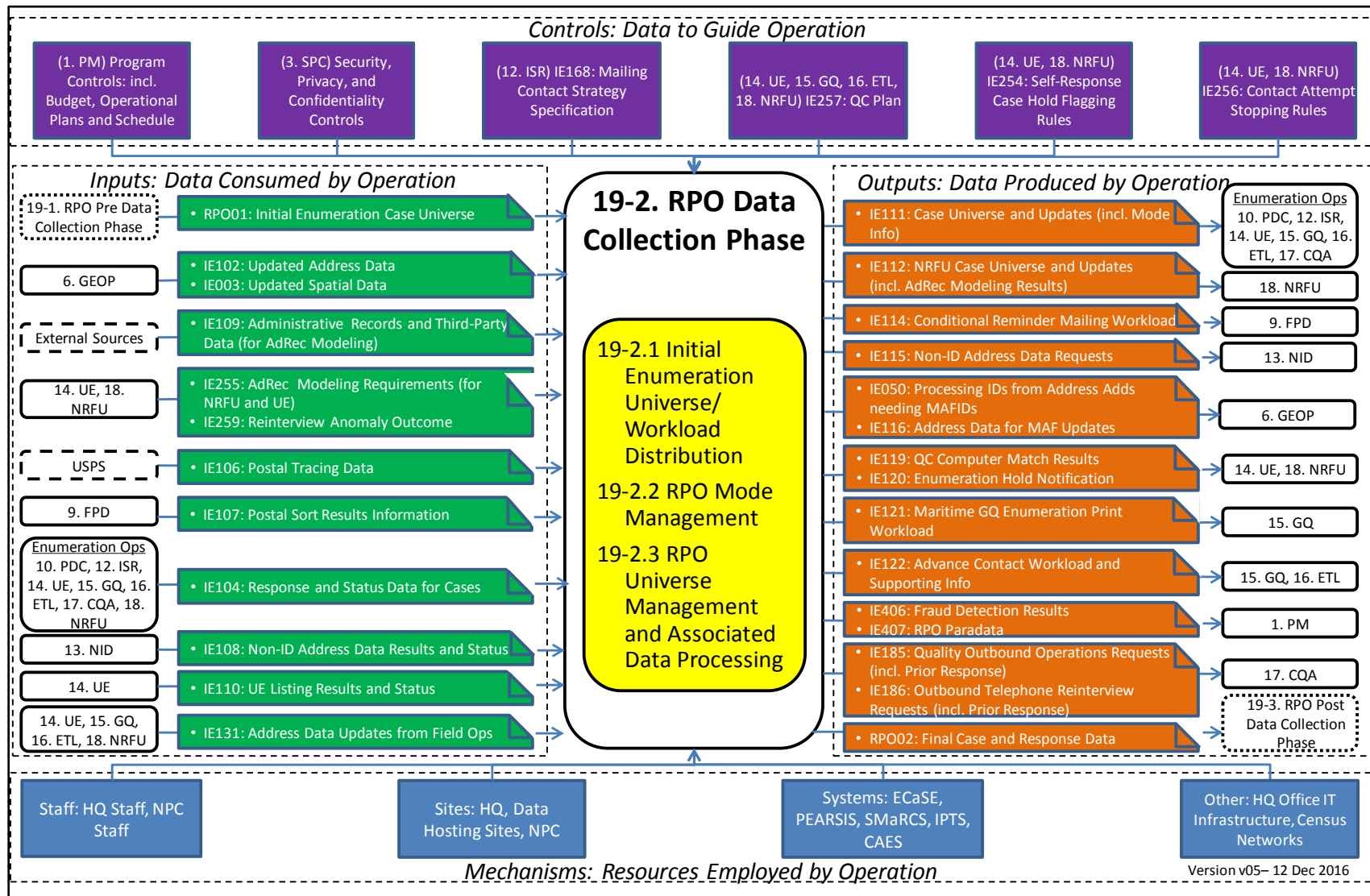


Figure 11: Context Diagram for RPO Data Collection Phase Activity

4.2.1 Inputs

Inputs are the data that are consumed by the operation. The inputs define the amount of operational work that needs to be performed.

Table 7 lists the inputs to the RPO Data Collection Phase.

Table 7: RPO Data Collection Phase Inputs

Provider	Information Exchange	Description
19-2 RPO Data Collection Phase	RPO01: Initial Enumeration Case Universe	The initial set of addresses for all known living quarters that are to be enumerated for the 2020 Census.
6. Geographic Programs Operation (GEOP)	<ul style="list-style-type: none"> IE102: Updated Address Data IE003: Updated Spatial Data 	The initial set of addresses for all known living quarters that are to be enumerated for the 2020 Census.
External Sources	IE109: Administrative Records and Third-Party Data (for AdRec Modeling)	Data from administrative records from other government sources or third-party data from commercial sources that are used by the Administrative Records modeling function to determine the occupied status of a living quarter (Occupied, Vacant, Delete, or Undetermined) and to determine the best time of day to contact the household to improve the likelihood of a successful contact attempt.
14. Update Enumerate Operation (UE) 18. Nonresponse Followup Operation (NRFU)	IE255: AdRec Modeling Requirements (for NRFU and UE)	Requirements for performing the administrative record modeling to be applied to the NRFU and UE followup universes. These requirements include the administrative record sources and modeling methodology.

Provider	Information Exchange	Description
<p>14. Update Enumerate Operation (UE)</p> <p>18. Nonresponse Followup Operation (NRFU)</p>	<p>IE259: Reinterview Anomaly Outcome</p>	<p>Results of the clerical and field staff reviews of reinterviews where the automated comparison indicated anomalies between the reinterview response and the production response. The outcome indicates whether or not the analysis resulted in a hard fail that requires the stoppage of all pending work for the enumerator in question and possible rework of previous cases.</p>
<p>United States Postal Service (USPS)</p>	<p>IE106: Postal Tracing Data</p>	<p>Data obtained from the postal service Individual Mail Barcode (IMB) capability, which traces individual mail pieces through the U.S. postal mail system. Received mail is scanned at the postal center, and receipt information is sent to the Census Bureau before opening and scanning.</p> <p>IMB tracing data are used to anticipate paper questionnaire return and generate enumeration case holds based on the Self-Response Case Hold Flagging Rules provided by UE and NRFU.</p>
<p>9. Forms Printing and Distribution Operation (FPD)</p>	<p>IE107: Postal Sort Results Information</p>	<p>Results of the printer/mailer contractor arrangements with USPS to deliver mailing items. Each mailing item (package, letter, or postcard) will have an IMB for postal tracing. RPO will need to know what IMB (and corresponding Census ID) is associated with each item that is sent from FPD and returned from respondents to Paper Data Capture operation (PDC). This information will also be used to identity USPS Undeliverable as Addressed mailing items.</p>

<p>Enumeration Operations including:</p> <p>10. Paper Data Capture Operation</p> <p>12. Internet Self-Response Operation (ISR)</p> <p>14. Update Enumerate Operation (UE)</p> <p>15. Group Quarters Operation (GQ)</p> <p>16. Enumeration at Transitory Locations Operation (ETL)</p> <p>17. Census Questionnaire Assistance Operation (CQA)</p> <p>18. Nonresponse Followup Operation (NRFU)</p> <p>30. Evaluations and Experiments (EAE)</p>	<p>IE104: Response and Status Data for Cases</p>	<p>Response data and associated status information that result from enumeration of cases in the 2020 Census Enumeration Case Universe.</p> <p>For PDC, the response data are the data submitted on paper questionnaires that have been scanned and imaged. Examples of PDC status data include: Forms Checked in through iCADE, and Data Delivered.</p> <p>For ISR, the response data are the data captured online. Examples of ISR status data include complete, partially complete, and blank. In addition to online self-response, telephone self-responses collected by CQA customer service representatives are captured within the ISR operation.</p> <p>For UE, ETL, and NRFU, the response data are the data captured through interviews conducted by the enumerators. For UE and NRFU, this includes production and rework cases as well as data collected from reinterviews conducted in the field. Examples of case status information for UE and NRFU include: Not Attempted, Attempted, Completed with Household, Completed with Proxy, Vacant, and Delete.</p> <p>For GQ, the response data are the data collected for all types of group quarters, however, any data from paper questionnaires are processed through the PDC operation.</p> <p>For CQA, the response data are the data provided for telephone reinterviews. Examples of CQA Status data include respondent not contacted and reinterview completed.</p> <p>For EAE, the response data are the data collected using experimental methods or questionnaires.</p>
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Provider	Information Exchange	Description
13. Non-ID Operation (NID)	IE108: Non-ID Address Data Results and Status	Non-ID matching and geocoding results from post real-time Non-ID processing.
14. Update Enumerate Operation (UE)	IE110: UE Listing Results and Status	<p>Listing results for all housing units included in UE TEAs. This includes production and relisting cases as well as data collected during Production Listing and Listing QC.</p> <p>Listing results are provided at the BCU level. Listing QC may be performed either in the office by NPC clerks or in the field by listers.</p>
14. Update Enumerate Operation (UE) 15. Group Quarters Operation (GQ) 16. Enumeration at Transitory Locations Operation (ETL) 18. Nonresponse Followup Operation (NRFU)	IE131: Address Data Updates from Field Ops	Address data updates provided by the field operations. This could include newly identified addresses for hidden units, in-movers, or respondents with a Usual Home Elsewhere, deletes when an address listed in the MAF is determined to no longer exist, and changes in living quarter type (e.g., housing unit to group quarter).

4.2.2 Controls

Controls are the data that guide the behavior of the operation. They are not consumed by the operation, but rather they provide guidance, models, limits, criteria, cutoff dates, or other information that controls the way in which the operational work is performed.

Table 8 lists the controls for the RPO Data Collection Phase.

Table 8: RPO Data Collection Phase Controls

Provider	Information Exchange	Description
1. Program Management Operation (PM)	Program Controls	<p>Program Control information including:</p> <ul style="list-style-type: none"> • Budget • Operational Plans and Schedule
3. Security, Privacy, and Confidentiality Operation (SPC)	Security, Privacy, and Confidentiality Controls	<p>Laws, policies, regulations, and guidelines related to physical security, IT security, data security and privacy and confidentiality impacts, analyses, and processes. These include but are not limited to Title 13, Title 26, and other laws and policies related to protection of personally identifiable information.</p>
12. Internet Self-Response Operation (ISR)	IE168: Mailing Contact Strategy Specification	<p>Business rules that define the sequence and timing of materials to be mailed to housing units inviting and reminding people to respond. The contact strategy rules are designed to encourage self-response online.</p> <p>These rules also apply to additional mailings sent to nonresponding housing units based on administrative records modeling.</p> <p>During data collection, these rules are used by RPO to create the conditional mailing workload for self-response and UE TEAs based on response status and housing unit status.</p>

Provider	Information Exchange	Description
14. Update Enumerate Operation (UE) 15. Group Quarters Operation (GQ) 16. Enumeration at Transitory Locations Operation (ETL) 18. Nonresponse Followup Operation (NRFU)	IE257: QC Plan	Plans for conducting Field Data Collection quality control. For UE and NRFU this includes sample selection methodologies and rates for reinterviews of original cases, rules for telephone vs. field reinterview, thresholds for automated detection of reinterview anomalies, systems used, and procedures for comparing and resolving reinterview cases and determining required rework. The details of the GQ and ETL processes are still being defined.
14. Update Enumerate Operation (UE) 18. Nonresponse Followup Operation (NRFU)	IE254: Self-Response Case Hold Flagging Rules	Rules for determining which cases to temporarily withhold from the UE and NRFU field followup workloads pending receipt of sufficient self-responses for those cases. For example, postal tracing data indicates paper responses will be arriving for cases in the UE or NRFU followup workloads.
14. Update Enumerate Operation (UE) 18. Nonresponse Followup Operation (NRFU)	IE256: Contact Attempt Stopping Rules	The number of attempts required before a case should be removed from the followup workload. The number of attempts will vary depending on the results of the AdRec Modeling.

4.2.3 Outputs

Outputs are the data produced by the operation. The outputs constitute the results of operational work that has been performed. Outputs produced may be used as inputs or controls to other operations.

Table 9 lists the outputs from the RPO Data Collection Phase.

Table 9: RPO Data Collection Phase Outputs

Consumer	Information Exchange	Description
<p>Enumeration Operations including:</p> <p>10. Paper Data Capture Operation (PDC)</p> <p>12. Internet Self-Response Operation (ISR)</p> <p>14. Update Enumerate Operation (UE)</p> <p>15. Group Quarters Operation (GQ)</p> <p>16. Enumeration at Transitory Locations Operation (ETL)</p> <p>17. Census Questionnaire Assistance Operation (CQA)</p>	<p>IE111: Case Universe and Updates (including Mode Info)</p>	<p>The set of cases (i.e. living quarters) to be enumerated and the expected response mode (internet, paper, update/enumerate) for each case.</p> <p>For PDC, ISR, and CQA, this includes the entire self-response universe.</p> <p>For UE, this also includes the listing workload and only covers cases in the UE and Remote Alaska TEAs.</p> <p>For GQ and ETL, this only includes cases for the corresponding living quarter type.</p>

Consumer	Information Exchange	Description
<p>18. Nonresponse Followup Operation (NRFU)</p> <p>30 Evaluations and Experiments (EAE) Operation</p>	<p>IE112: NRFU Case Universe and Updates (including AdRec Modeling Results)</p>	<p>The set of NRFU cases (i.e. housing units) to be enumerated and the parameters associated with those cases (e.g., mode of collection, AdRec modeling results, maximum number of contacts, etc.)</p> <p>The initial NRFU Case Universe is provided when the NRFU operation begins. The NRFU Case Universe supports both Early NRFU and Production NRFU data collection. Updates to the Universe are sent on a regular (e.g., daily) basis to reflect changes in case status (e.g., self-response and address changes).</p> <p>The NRFU case universe also includes cases selected for QC reinterview and field verification cases.</p> <p>For EAE, this includes cases selected by the EAE stratification.</p>
<p>9. Forms Printing and Distribution Operation (FPD)</p>	<p>IE114: Conditional Reminder Mailing Workload</p>	<p>The set of nonresponding addresses in the Self-Response and UE TEAs that are to be mailed reminders and other materials during data collection. The workload includes the timing, sequence, and type of paper material (letter, questionnaire, language, etc.) to be included in the mailing for each address.</p> <p>Conditional Reminder Mailings include: Self-Response Reminder Workload for SR and UE TEAs, AdRec Occupied Removals, and AdRec Vacant/Delete Removals.</p>

Consumer	Information Exchange	Description
13. Non-ID Operation (NID)	IE115: Non-ID Address Data Requests	Non-ID addresses from Response Processing that need resolution of their Census ID.
6. Geographic Programs Operation (GEOP)	IE050: Processing IDs from Address Adds needing MAFIDs	<p>RPO uses Processing IDs for Response Data collected from addresses newly added during the Field Data Collection Operations.</p> <p>These Processing IDs will need to be assigned with the corresponding new MAFIDs when RPO receives the updated Address Data from GEOP for the new addresses.</p>
6. Geographic Programs Operation (GEOP)	IE116: Address Data for MAF Updates	Updated address data used for MAF Updates.
14. Update Enumerate Operation (UE) 18. Nonresponse Followup Operation (NRFU)	IE119: QC Computer Match Results	Differences found by RPO during an automated comparison of response data collected for reinterview cases with response data collected for production cases.

Consumer	Information Exchange	Description
14. Update Enumerate Operation (UE) 18. Nonresponse Followup Operation (NRFU)	IE120: Enumeration Hold Notification	Notification that a self-response has been received or has generated postal tracing data and therefore should be temporarily withheld from the UE and NRFU field followup workload (i.e., the field staff's daily assignments). This notification is sent to the field operation as soon as RPO receives the self-response indication. If the self-response is later found to be insufficient, it will be added back into the followup workload at that time.
15. Group Quarters Operation (GQ)	IE121: Maritime GQ Enumeration Print Workload	Workload for the Maritime GQ Enumeration, which is used to enumerate people on civilian maritime vessels.
15. Group Quarters Operation (GQ) 16. Enumeration at Transitory Locations Operation (ETL)	IE122: Advance Contact Workload and Supporting Info	Supporting Information and Workload for GQ and ETL Advance Contact used to verify and update the Contact Information that was collected during the In-Office Address Canvassing.
1. Program Management Operation (PM)	IE406: Fraud Detection Results	Results and paradata on fraudulent cases.
1. Program Management Operation (PM)	IE407: RPO Paradata	Status and progress data related to RPO data collection activities.

Consumer	Information Exchange	Description
17. Census Questionnaire Assistance Operation (CQA)	IE185: Quality Outbound Operations Requests (including Previous Response)	<p>Requests for followup outbound calls for specific cases as identified in the Response Processing Operation based on quality followup criteria.</p> <p>These requests include case identification information, contact information, previous response data, and all other data needed by the CQA CSR to conduct the outbound call.</p>
17. Census Questionnaire Assistance Operation (CQA)	IE186: Outbound Telephone Reinterview Requests (including Previous Response)	<p>Requests for telephone reinterview for cases for which response data were collected during either the Nonresponse Followup (NRFU) or Update/Enumerate (UE) operations. Quality control processes within RPO determine the need for NRFU or UE reinterview and send the corresponding information to the CQA operation.</p> <p>The requests include case identification information, contact information, prior response data, and all other data needed by the CQA CSR for conducting the telephone reinterview.</p>
19-3. RPO Post-Data Collection Phase	RPO02: Final Case and Response Data	The final set of cases and corresponding response data that have been through preliminary data processing (e.g., matching, unduplication, coverage improvement, and coding)

4.2.4 Mechanisms

Mechanisms are the resources (people, places, and things) that are used to perform the operational processes. They include Staff Resources, Infrastructure Sites, Systems, and other Technology Infrastructure.

Staff Resources

Table 10 identifies the Staff Resources employed for the RPO Data Collection Phase.

Table 10: Staff Resources Used Within RPO Data Collection Phase

Staff Resources	Description/Role
HQ Staff	Headquarters (HQ) staff who manage the RPO and coordinate activities.
NPC Staff	Staff at the NPC who support clerical data processing activities (e.g., coding) that occur during the data collection phase.

Infrastructure Sites

Table 11 identifies the Infrastructure Sites employed for the RPO Data Collection Phase.

Table 11: Infrastructure Sites for RPO Data Collection Phase

Infrastructure Site	Description/Role
HQ	HQ Site for office work conducted in support of the RPO.
Data Hosting Sites	Secure facilities that are used to host 2020 Census data and perform associated data processing.
NPC	The National Processing Center (NPC) in Jeffersonville, Indiana.

Systems and other Technology Infrastructure

Table 12 identifies the Systems employed for the RPO Data Collection Phase.

Table 12: Systems Used Within RPO Data Collection Phase

System	Description
ECaSE	Enterprise solution that supports 2020 Census operational work. For RPO, ECaSE is used to manage the universe for all enumeration operations and maintain operational workloads as data collection proceeds (ECaSE-OCS).

System	Description
Production Environment for Administrative Records Staging, Integration and Storage (PEARSIS)	A system to manage Administrative Records and provide services associated with those records.
Sampling, Matching, Reviewing, and Coding System (SMaRCS)	<p>An application supporting quality control for field operations during the 2020 Census Research and Testing program and the 2020 Census. SMaRCS specifically supports quality control operations designed to determine whether field listers and enumerators are using validated procedures and collecting accurate data. SMaRCS facilitates quality control operations by providing a mechanism for selecting quality control samples, validating production interview data against administrative records sources, and by providing a tool for clerical matching to compare the production interview data against Reinterview (RI) data. SMaRCS also serves as a major control component for quality control operations by managing the selection of quality control samples for field followup related to Census and CM operations and tracking the progress of the RI work through the matching, field, and resolution processes.</p> <p>For RPO, SMaRCS is used to select the quality control samples, conduct an automated matching of production interview data with reinterview data and track progress of the RI work. SMaRCS is also used to support Listing QC needs.</p>
Intelligent Mail Barcode (IMB) Confirm Service® Postal Tracking System (IPTS)	IPTS is a mail tracking system developed by the Census Bureau / USPS to trace individual mail pieces through USPS. Received mail is scanned at the postal center and receipt info is sent to Census before opening and scanning within the PDC Operation.
Concurrent Analysis and Estimation System (CAES)	An enterprise modeling platform that stores data and uses it to execute statistical models in support of survey flow processing, analysis, and control.

Other Technology Infrastructure employed for the RPO Data Collection Phase includes:

- HQ Office IT Infrastructure for conducting RPO Data Collection Phase operational work.
- Census network connectivity for data transmission between operational systems and operational sites.

4.3 Initial Enumeration Universe/Workload Generation [RPO 19-2.1]

As shown in Figure 10, the first activity in the RPO Data Collection Phase is “Initial Enumeration Universe/Workload Generation.” This operational subactivity is subdivided into the following constituent activities.

- Initial Enumeration Universe/Workload Generation [RPO 19-2.1].
 - Generate Initial Enumeration Universe Case List to HU Self-Response Operations [RPO 19-2.1.1].
 - Generate Initial UE Universe/Workload to UE Operation Control (OC) [RPO 19-2.1.2].
 - Generate Initial GQ Universe/Workload to GQ Operation Control (OC) [RPO 19-2.1.3].
 - Generate Initial ETL Universe/Workload to ETL Operation Control (OC) [RPO 19-2.1.4].

A detailed view of the constituent activities that make up the “Initial Enumeration Universe/Workload Generation” operational subactivity is given in Figure 12 below.

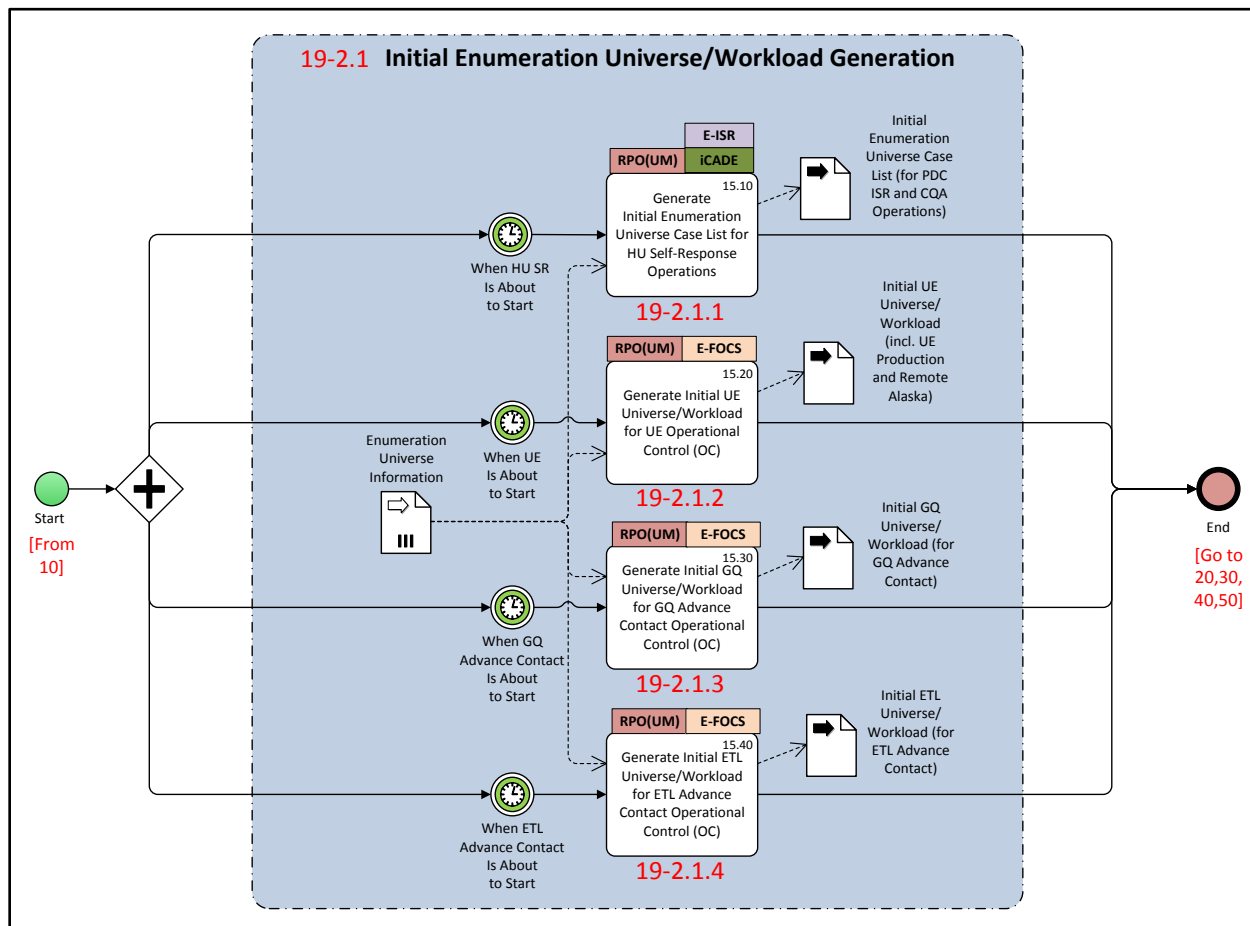


Figure 12: Initial Enumeration Universe/Workload Generation [RPO 19-2.1] Constituent Activities

When each data collection operation is ready to start, RPO uses the enumeration universe information provided from the pre-data collection phase to generate initial enumeration universe/workload information for the operations.

Subsequent sections describe the “Initial Enumeration Universe/Workload Generation” operational subactivities in detail.

4.3.1 Generate Initial Enumeration Universe Case List to HU Self-Response Operations [RPO 19-2.1.1]

Refer to Figure 12 for a view of the activity that makes up the “Generate Initial Enumeration Universe Case List to HU Self-Response Operations” operational subactivity.

The initial self-response enumeration universe is generated to support the Self-Response Operations. This initial universe includes the PDC universe that is delivered to the iCADE System, as well as the CQA and ISR universes that are delivered to the ECaSE Internet Self-Response System.

4.3.2 Generate Initial UE Universe/Workload to UE Operation Control (OC) [RPO 19-2.1.2]

Refer to Figure 12 for a view of the activity that makes up the “Generate Initial UE Universe/Workload to UE Operation Control (OC)” operational subactivity.

The initial Update Enumerate workload is generated to support the (UE) Operation. The workload is then delivered to the ECaSE Field Operational Control System for distribution. This initial workload includes the (UE) Production Universe (blocks and addresses) as well as the UE Remote Alaska Universe.

4.3.3 Generate Initial GQ Universe/Workload to GQ Operation Control (OC) [RPO 19-2.1.3]

Refer to Figure 12 for a view of the activity that makes up the “Generate Initial GQ Universe/Workload to GQ Operation Control (OC)” operational subactivity.

The initial Group Quarters enumeration workload is generated to support the (GQ) Operation. The workload is then delivered to the ECaSE Field Operational Control System for distribution. This initial workload includes the cases specified for the GQ Advance Contact Operation.

4.3.4 Generate Initial ETL Universe/Workload to ETL Operation Control (OC) [RPO 19-2.1.4]

Refer to Figure 12 for a view of the activity that makes up the “Generate Initial ETL Universe/Workload to ETL Operation Control (OC)” operational subactivity.

The initial Enumeration at Transitory Locations (ETL) workload is generated to support the ETL Operation. The workload is then delivered to the ECaSE Field Operational Control System for distribution. This initial workload includes the cases specified for the ETL Advance Contact Operation.

4.4 Support Housing Unit Self-Response (HU SR) Data Collection and Nonresponse Followup (NRFU) [RPO 19-2.2.1]

As shown in Figure 10, the second activity in the RPO Data Collection Phase is “Support Housing Unit Self-Response (HU SR) Data Collection and Nonresponse Followup (NRFU).” This activity is one of a set of operation-specific support activities collected under the “RPO Mode Management” Activity Area [RPO 19-2.2]. The RPO operational subactivity 19-2.2.1 is subdivided into the following constituent activities.

- Support Housing Unit Self-Response (HU SR) Data Collection and Nonresponse Followup (NRFU) [RPO 19-2.2.1].
 - Distribute HU SR Universe Case Information [RPO 19-2.2.1.1].
 - Receive HU SR Status and Response Data [RPO 19-2.2.1.2].
 - Manage HU SR and NRFU Response Results [RPO 19-2.2.1.3].

- A detailed view of the constituent activities that make up the “Support Housing Unit Self-Response (HU SR) Data Collection and Nonresponse Followup (NRFU)” operational subactivity is given in Figure 13 below.

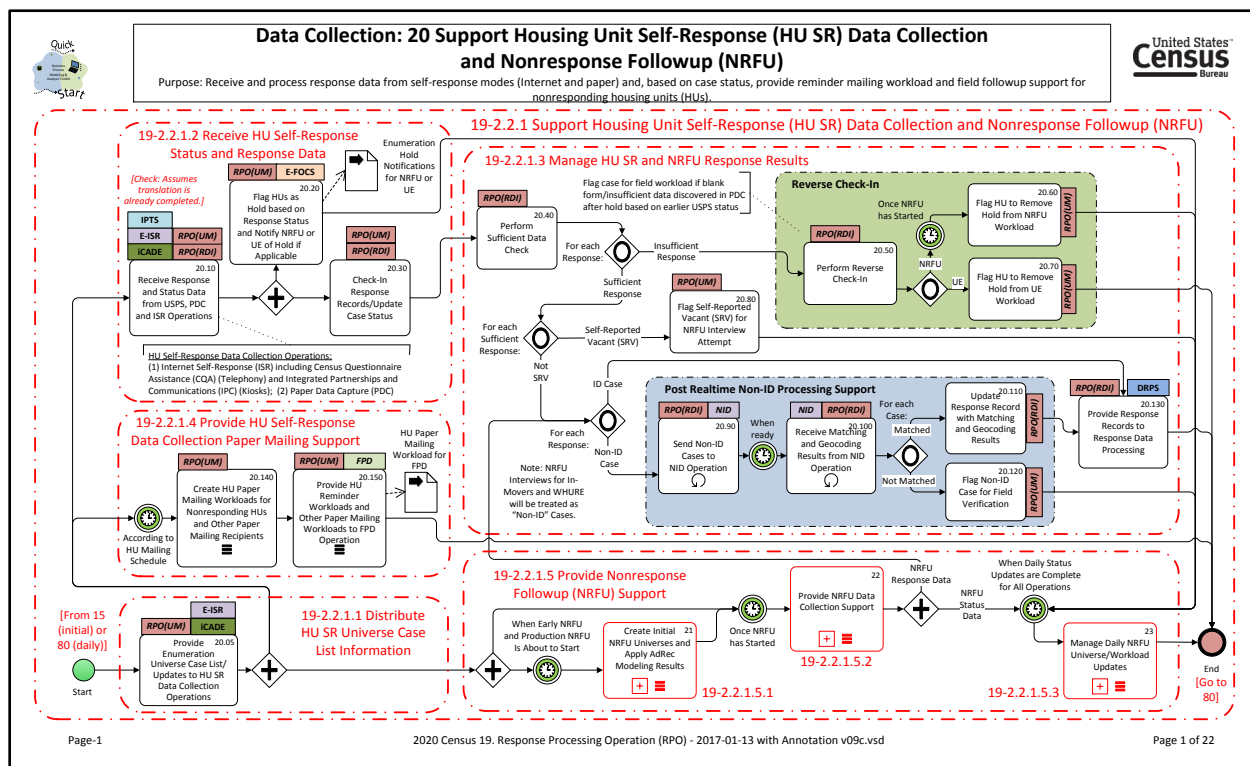


Figure 13: Support Housing Unit Self-Response (HU SR) Data Collection and Nonresponse Followup (NRFU)

RPO receives and processes data from self-response modes (Internet and paper) and, based on case status, provides reminder mailing workload and field followup support for nonresponding HUs.

Subsequent sections describe the “Support Housing Unit Self-Response (HU SR) Data Collection and Nonresponse Followup (NRFU)” operational subactivities in detail.

4.4.1 Distribute HU SR Universe Case Information [RPO 19-2.2.1.1]

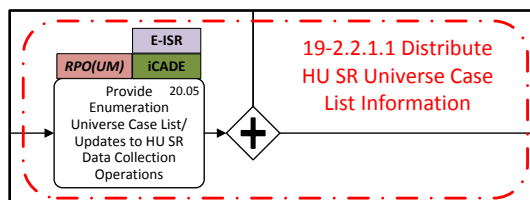


Figure 14: Distribute HU SR Universe Case Information

As shown in the BPM above, there is one step involved in this activity:

- Provide Enumeration Universe Case List/Updates to HU SR Data Collection Operations [20.05].

4.4.2 Receive HU Self-Response Status and Response Data [RPO 19-2.2.1.2]

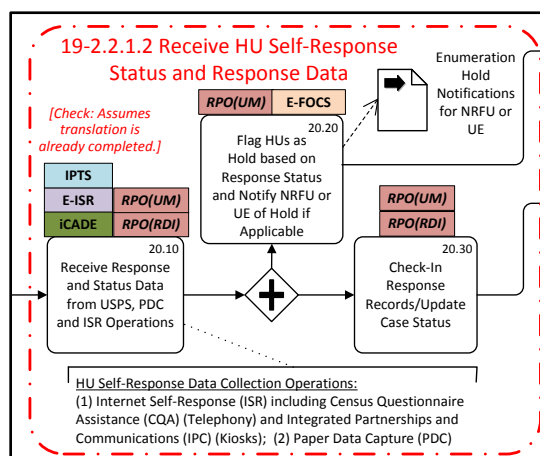


Figure 15: Receive HU Self-Response Status and Response Data

As shown in the BPM above, there are three steps involved in this activity:

- Receive Response and Status Data from USPS, PDC, and ISR Operations [20.10].
- Flag HUs as Hold based on Response Status and Notify NRFU or UE of Hold if Applicable [20.20].
- Check-In Response Records/Update Case Status [20.30].

RPO receives Response Data from the two self-response data collection operations: PDC and ISR. Any responses entered by respondents at kiosks used by the Integrated Partnership and Communications Operation or by Customer Service Representatives (CSRs) on behalf of respondents through the Census Questionnaire Assistance Operation (CQA) are sent to RPO via the ISR Operation. All responses received are either in English or Spanish. Non-English and Non-Spanish or unknown languages are sent to the Decennial Translation Branch for translation.

Any translation required has already been performed by the appropriate self-response data collection operation.

Based on the Self-Response Case Hold Flagging Rules, RPO flags HUs that should be held from the field followup workload. These include HUs for which RPO has received tracking information from the USPS that mail is en route to one of the paper data capture centers and HUs for which RPO has received a self-response. RPO also sends an immediate notification to the NRFU and UE Operations regarding these returns so that those operations can remove them, as necessary, from the current day's followup workload.

RPO checks in all responses and updates the case status to reflect that the case has been received.

4.4.3 Manage HU Self-Response and NRFU Response Results [RPO 19-2.2.1.3]

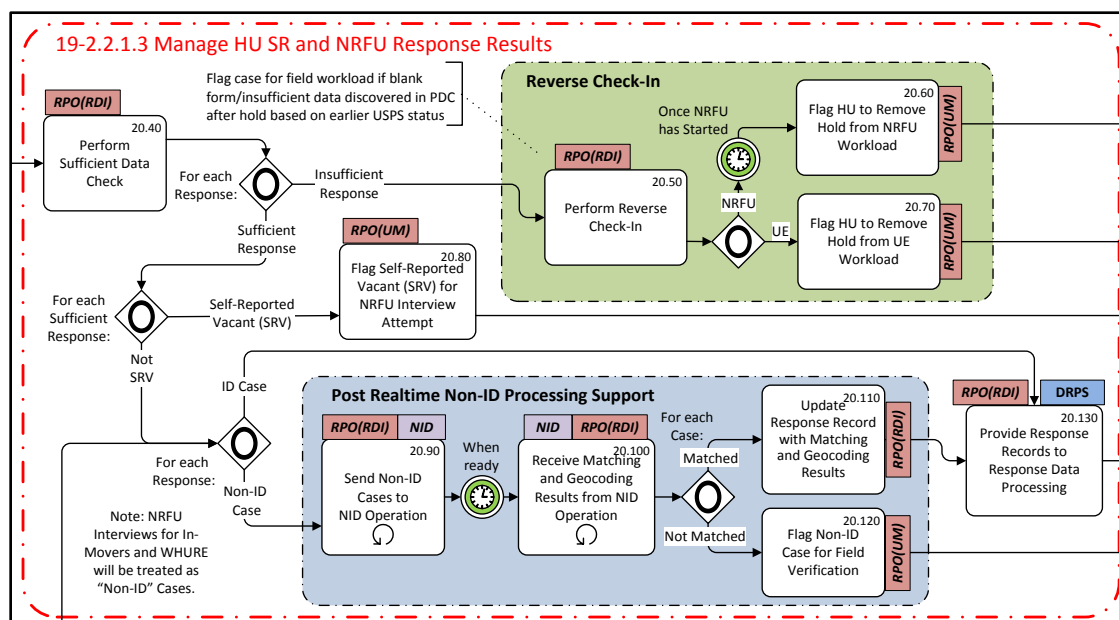


Figure 16: Manage HU Self-Response and NRFU Response Results

As shown in the BPM above, there are multiple steps involved in this activity:

- Perform Sufficient Data Check [20.40].
- Reverse Check-In.
 - Perform Reverse Check-In [20.50].
 - Flag HU to Remove Hold from NRFU Workload [20.60].
 - Flag HU to Remove Hold from UE Workload [20.70].
- Flag Self-Reported Vacant (SRV) for Field Verification [20.80].
- Post Realtime Non-ID Processing Support.

- Send Non-ID Cases to NID Operation [20.90].
- Receive Matching and Geocoding Results from NID Operation [20.100].
- Update Response Record with Matching and Geocoding Results [20.110].
- Flag Non-ID Case for Field Verification [20.120].
- Provide Response Records to Response Data Processing [20.130].

RPO performs a check on all response data to determine if the responses are sufficient based on predefined RPO business rules. For responses that are not sufficient, RPO performs a reverse check-in to indicate that a sufficient response has not yet been received. RPO also flags the case to remove the hold from the field followup workload. For sufficient responses, RPO flags any HUs that are reported by the respondent as vacant (SRVs). These units must be verified as vacant in the field and will be part of the NRFU workload in a subsequent activity. Responses that are not SRV and are considered Non-ID cases (i.e., they were not able to be matched a known address during real-time Non-ID processing), are sent to NID for matching and geocoding using administrative records and clerical procedures. If these cases are matched to a record and geocoded, RPO updates the response record with the results. RPO flags for further field verification as part of NRFU any cases that could not be matched. RPO sends all response records to the Response Data Processing function for further processing.

4.4.4 Provide HU Self-Response Data Collection Paper Mailing Support [RPO 19-2.2.1.4]

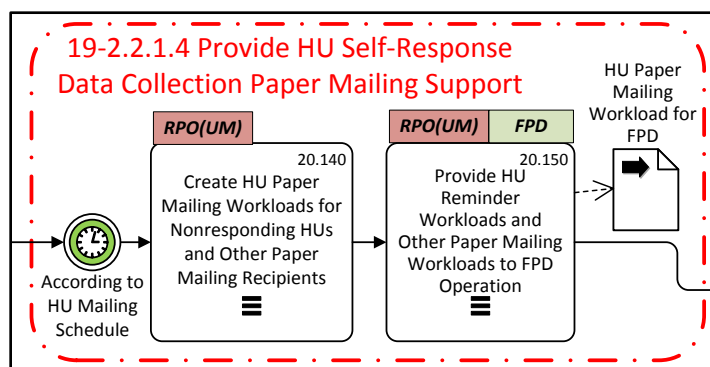


Figure 17: Provide HU Self-Response Data Collection Paper Mailing Support

As shown in the BPM above, there are two steps involved in this activity:

- Create HU Paper Mailing Workloads for Nonresponding HUs and Other Paper Mailing Recipients [20.140].
- Provide HU Reminder Workloads and Other Paper Mailing Workloads to FPD Operation [20.150].

RPO creates a paper mailing workload for nonresponding HUs and other paper mailing recipients. These reminders are conditional and are only sent to those HUs that have not yet

responded. This paper mailing workload includes HUs that have been output from administrative records modeling as vacant or deleted (AdRec Vacant/Delete). It also includes HUs that have been determined output from administrative records modeling as occupied (AdRec Occupied), provided that one unsuccessful field contact attempt has been completed. The type of reminder mailing is indicated in the paper mailing workload, which is sent to the FPD operation.

4.4.5 Provide Nonresponse Followup (NRFU) Support [RPO 19-2.2.1.5]

The “Provide Nonresponse Followup (NRFU) Support” operational subactivity is subdivided into the following constituent activities.

- Provide Nonresponse Followup (NRFU) Support [RPO 19-2.2.1.5].
 - Create Initial NRFU Universes and Apply AdRec Modeling Results [RPO 19-2.2.1.5.1].
 - Create Early NRFU Universe [RPO 19-2.2.1.5.1.1].
 - Create Initial Production NRFU Universe (incl. FV Workload) [RPO 19-2.2.1.5.1.2].
 - Provide NRFU Data Collection Support [RPO 19-2.2.1.5.2].
 - Receive NRFU Response and Status Data [RPO 19-2.2.1.4.5.1].
 - Manage NRFU Response Results [RPO 19-2.2.1.5.2.2].
 - Process NRFU Response Results [RPO 19-2.2.1.5.2.2.1].
 - Perform NRFU Reinterview QC Support [RPO 19-2.2.1.5.2.2.2].
 - Manage Daily NRFU Universe/Workload Updates [RPO 19-2.2.1.5.3].

A detailed view of the constituent activities that make up the “Provide Nonresponse Followup (NRFU) Support” operational subactivity is given in Figure 18, Figure 19, Figure 20, and Figure 21 below.

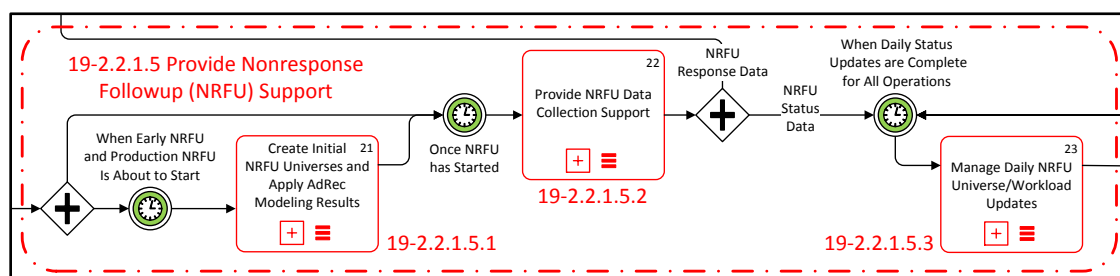


Figure 18: Provide Nonresponse Followup (NRFU) Support

Response and status data collected through the various self-response data collection operations are sent (in digital format) to RPO’s RDI function, which uses the response status data to determine the appropriate actions for that case. Non-ID cases are sent by RPO to NID for post data-capture Non-ID processing, which attempts to match addresses provided by respondents to

addresses with Census IDs by AdRecs and clerical procedures, including the MAF/TIGER database. The results of these attempts are sent back to RPO. Those responses that are not able to be matched through this operation are sent to the field for verification as part of NRFU.

As NRFU attempts to enumerate households, results are fed back to the operational control system for processing. For cases identified as AdRec occupied with one unsuccessful attempt, the address is added to AdRec Occupied Removal HU Paper Mailing Workload and sent a final paper mailing reminder for self-response. Cases that are successfully enumerated are marked as completed. All cases completed by an enumerator are eligible for quality control and can be selected intentionally or by random check. Any quality control cases that alert the Census Bureau to error or mishandling are put back into the NRFU universe for new enumeration by a different enumerator.

Prior to Early NRFU and Production NRFU, RPO creates the initial NRFU universe and applies previously determined AdRec modeling results.

On a daily basis the universe is updated to remove successful enumerations as well as any cases where completed census forms were received.

4.4.5.1 Create Initial NRFU Universes and Apply AdRec Modeling Results [RPO 19-2.2.1.5.1]

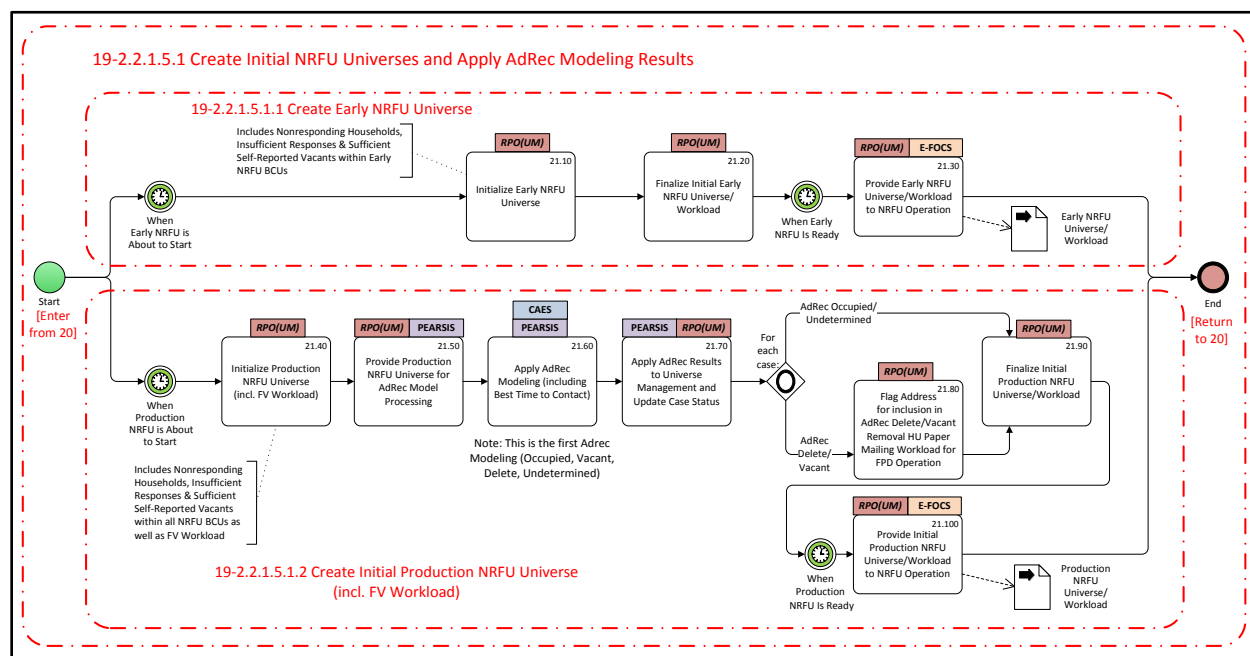


Figure 19: Create Initial NRFU Universes and Apply AdRec Modeling Results

Refer to Figure 19 for a view of the activity that makes up the “Create Initial NRFU Universes and Apply AdRec Modeling Results” operational subactivity.

The Response Processing Operation provides NRFU with their universe as well as any necessary updates. The initial universe consists of nonresponding addresses and addresses from other operations requiring fieldwork. RPO applies AdRec modeling and contact strategies with business rules to set parameters for each address, such as the maximum number of contact attempts, and defining proxy eligibility.

RPO will update the universe to include:

- Removal of self-responding addresses and other work status changes, for example, stop works and temporary holds on cases.
- More current administrative record modeling information.
- Characteristic updates for cases, for example, language requirements for enumeration, dangerous situations, etc.
- RI cases and cases identified for rework based on QC results. A RI case will be assigned to a different enumerator from the one who conducted the original interview.

For nonresponding cases, the RPO supports NRFU by facilitating administrative records modeling techniques to determine the most effective and efficient enumeration strategy, including removal of vacant and deleted cases before followup, provision of a “best time to contact” recommendation to be used by the operational control system, and removal of cases from the workload based on established “stopping rules” to maximize efficiency in the NRFU operation.

Based on the universe case type (derived from TEA and living quarter type), RPO sends the initial enumeration case universe/workload to the NRFU operation and provides updates to these universes as data are collected and cases are completed.

4.4.5.1.1 Create Early NRFU Universe [RPO 19-2.2.1.5.1.1]

Refer to Figure 19 for a view of the activity that makes up the “Create Early NRFU Universe” operational subactivity.

Some areas of the country present special challenges to NRFU, where the residents of those areas are likely to vacate their housing units after Census Day (April 1) but before the start of NRFU. The most common scenario occurs where certain colleges and universities close before NRFU begins. To address this challenge, NRFU will start earlier in these areas to increase the chance of interviewing the residents at their Census Day address. Early NRFU will occur from April 1 through mid-May. Locations requiring early NRFU are identified with the help of field managers who are knowledgeable about the local areas. With input from the GEO, NRFU will confirm and provide these requirements to RPO to create the universe for early NRFU.

4.4.5.1.2 Create Initial Production NRFU Universe (incl. FV Workload) [RPO 19-2.2.1.5.1.2]

Refer to Figure 19 for a view of the activity that makes up the “Create Initial Production NRFU Universe (including FV Workload)” operational subactivity.

NRFU will provide the following to RPO to use for delivering the NRFU universe:

- Contact strategies and associated business rules that RPO applies to the NRFU universe.
- Quality Control plan that NRFU uses to determine the selection by RPO of cases for NRFU-RI.
- Administrative record modeling sources and methodologies for the production of the administrative record modeling results that AdRec applies to the NRFU universe.

These contact strategies and business rules are sent to RPO to be applied to the universe that RPO provides for NRFU to create case assignments. See Section 4.4.5.1 for more information about the receiving of the NRFU universe from RPO.

Response and status data collected through the various self-response data collection operations are sent (in digital format) to RPO’s RDI function, which uses the response status data to determine the appropriate actions for that case. Non-ID cases are sent by RPO to NID for post data-capture Non-ID processing, which attempts to match addresses provided by respondents to addresses with Census IDs via AdRecs and clerical procedures. The results of these attempts are sent back to RPO. Those responses that are not able to be matched through this operation are sent to the field for verification as part of NRFU.

4.4.5.2 Provide NRFU Data Collection Support [RPO 19-2.2.1.5.2]

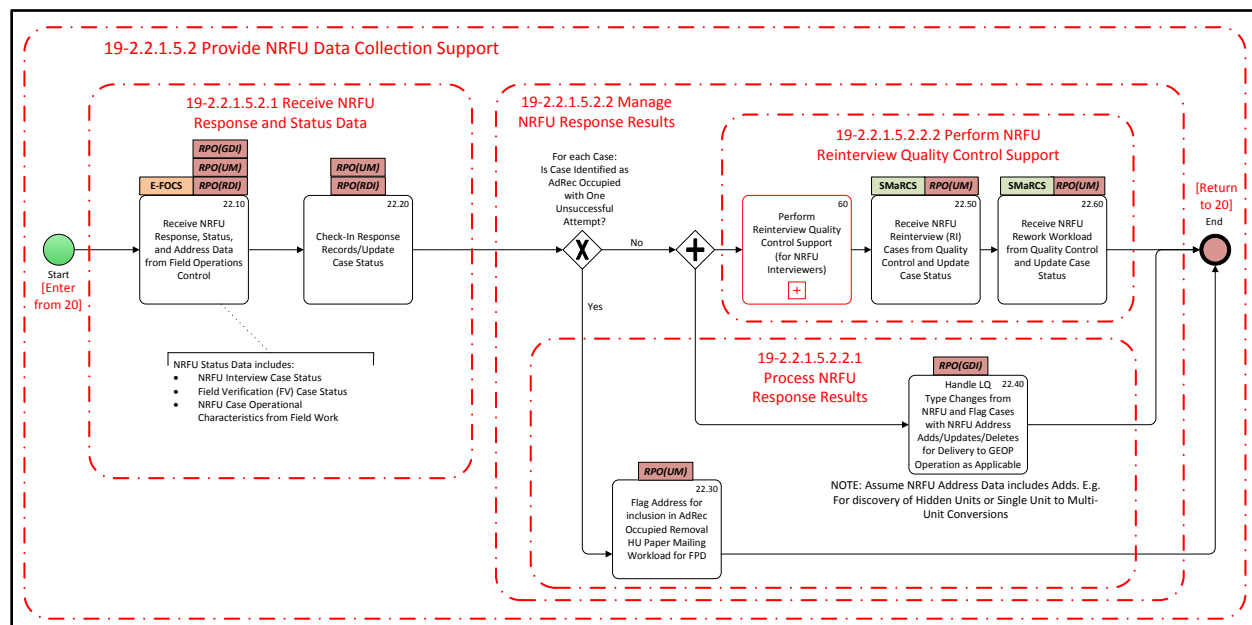


Figure 20: Provide Nonresponse Followup (NRFU) Data Collection Support

After each completed attempt (including completed interviews), NRFU sends the following types of data to RPO:

- **Status (operational data):** Response status describes the result of the attempt, for example, no one home, insufficient partial, or completed interview with the household. These data determine the next action for the attempt, if needed. Other operational data include the language that the interview was conducted in, whether an interpreter was present, proxy eligibility status, and Case Notes.
- **Response data;** Any questionnaire responses collected in an interview, housing unit status, household characteristics (tenure, population count), individual characteristics (relationship, sex, date of birth/age, race, undercount/overcount questions).
- **Paradata;** Auxiliary data that provide information about the data collection process. Includes, for instance, time spent on an interview, the path through ECaSE ENUM, what specific keys were pressed, length of time on each question, how often help functionality was used. After a completed attempt, UE sends this type of data to PM (to the paradata repository in Unified Tracking System (UTS)).

The operational data that is sent to RPO determines the next action for the case, for example, another contact attempt or reinterview or whether the case should be removed from future followup workload because the maximum number of attempts has been reached. Status also includes address updates and address verification. This status might include classification as a

group quarter or transitory location that RPO would then route to the appropriate operation. For completed and sufficient partial cases, the response data are sent to RPO for processing. PM tracks paradata for analysis of quality of data and improvement of future census operations.

4.4.5.2.1 Receive NRFU Response and Status Data [RPO 19-2.2.1.5.2.1]

Refer to Figure 20 for a view of the activity that makes up the “Receive NRFU Response and Status Data” operational subactivity.

As discussed above, RPO receives NRFU response and status data as it is sent from NRFU data collection activities. This data includes NRFU interview case status, field verification case status, and NRFU case operational characteristics from field work, including from housing units added to the census universe. This data will be received through the operational control system via a nightly feed. All open cases will be updated accordingly with this new data, and, if appropriate, removed from the outstanding NRFU workload.

NRFU’s primary purpose is to determine the housing unit status of addresses that did not self-respond to the 2020 Census and enumerate those that did not respond and are believed to be occupied. As mentioned above, NRFU also performs a field verification activity to verify addresses for self-responses that could not be matched to known addresses through the NID operation.

RPO sends an early case universe/workload to the NRFU operation around early April; at this point enumeration begins.

4.4.5.2.2 Manage NRFU Response Results [RPO 19-2.2.1.5.2.2]

Refer to Figure 20 for a view of the activity that makes up the “Manage NRFU Response Results” operational subactivity.

HUs that have been determined through administrative records modeling to be occupied are only visited once during NRFU. If these cases have not been successfully enumerated from this one visit (attempt), then RPO triggers one final mailing to these homes (by FPD) to encourage these households to self-respond. These HUs are removed from the future followup workload. HUs that are successfully enumerated are also removed from the future followup workload. NRFU sends to RPO information regarding the success of an enumeration attempt as part of the Response Status Data. RPO RDI function tracks this information and uses it to determine what to include in the next day’s followup workload.

Self-responses can continue to arrive during the NRFU field operation. Accordingly, RPO flags HUs in the followup workload for which RPO has received a self-response or tracking information from the United States Postal Service (USPS) that indicates that a return is on its way to one of the paper data capture facilities. The NRFU operation is notified about these flagged HUs as soon as the information is available so that those operations can remove the HUs

from the daily workload if possible. Any self-responses that are flagged but later found to be insufficient are added back to the NRFU workload for continued enumeration attempts.

4.4.5.2.2.1 Process NRFU Response Results [RPO 19-2.2.1.5.2.2.1]

Refer to Figure 20 for a view of the activity that makes up the “Process NRFU Response Results” operational subactivity.

Any cases that are identified as AdRec Occupied with one unsuccessful attempt are sent to the operational control system for removal from the NRFU universe. RPO provides this list of cases to FPD for a final mailing that gives the household a final chance to respond. Cases that are identified as AdRec Occupied and have been successfully enumerated are also sent to the operational control system for removal from the NRFU workload.

Census Bureau field staff may uncover changes to addresses or living quarter type assignments as they perform their daily assignments. For example, a NRFU enumerator may go to an address and find that it is a group quarter that was mistakenly identified as a HU. All listing results and other address information are sent to the RPO GDI function, which passes the information on to the GDP function in GEOP.

4.4.5.2.2.2 Perform NRFU Reinterview QC Support [RPO 19-2.2.1.5.2.2.2]

Refer to Figure 20 for a view of the activity that makes up the “Perform NRFU Reinterview QC Support” operational subactivity.

All cases completed by an enumerator are eligible for quality control and can be selected intentionally or by random check. Any quality control cases that alert the Census Bureau to error or mishandling are put back into the NRFU universe for new enumeration by another enumerator.

NRFU includes a quality control (QC) function to ensure that the staff perform the work expected and that the data collected are correct. RPO Quality Control Management (QCM) function selects sample cases for RI. For reinterviews, all of the sample RI cases are done by CQA where there is a valid phone number; only cases that don’t have a valid phone number will go to the field. Cases that are not resolved by CQA will also be sent to the field.

The NRFU RI IPT develops a plan for selecting the QC sample of cases for RI as described in this subsection. Any completed NRFU interview (by either census household member or proxy) is a candidate for RI selection, including cases with a vacant or delete status via proxy interview, field verification and multiunit manager visits.

To select cases for RI, RPO samples the completed cases using the Sampling, Matching, Reviewing, and Coding System (SMaRCS). RPO makes the following selections from the sufficient or completed NRFU production interviews:

- **Random:** Random selection from the eligible cases completed by every NRFU enumerator. For each enumerator, SMarCS will randomly select one of the first three eligible cases completed and thereafter every n th eligible case, where n depends on the percentage of cases NRFU wants to select for Random RI for each enumerator. For example, if approximately 5 percent is selected for Random RI, then $n=20$.
- **Analytic:** Selections based on a variety of outlier tests, such as GPS distance, interview length, and missing phone number, that focus the sample on cases that appear suspicious.
- **Supplemental:** Selection of an enumerator's future cases or manual selection of previously completed cases based on a case having computer-matching anomalies and the NRFU Clerical Resolution staff requesting more cases for further investigation of potential falsification.
- **Rework:** Selection of an enumerator's previously completed cases when the matching of a RI case with the enumerator's original case resulted in a determination of falsification.

NRFU Quality Control plan includes information for RPO on:

- Telephone RI Eligibility Rules.
- RI Sample Completion Rules.
- RI Anomalies Determination Rules (thresholds).
- RI Rework Rules (selection of cases for rework).

Automation allows for a smarter QC sample using paradata from ECaSE ENUM.

The results of these efforts are compared to the original results, and the appropriate actions are taken depending on the results. For reinterviews, RPO QCM does an automated comparison of the original results against the results from the reinterviews. If there are anomalies, these are sent to the NPC where additional research is conducted to determine how these cases should be handled. The results of this review (Adjudication Outcomes) are sent back to the RPO QCM function. In some cases, the adjudication requires that prior cases performed by the Enumerator at fault be reworked. RPO puts these cases back into the NRFU workload as appropriate.

Once the data collection is complete, post-data collection processing begins. In this phase, the RPO DRP function performs supplemental enumeration for those cases that had been identified as Occupied through the administrative records modeling but for which a NRFU attempt was unsuccessful and no subsequent self-response was received. These cases are enumerated using data from administrative records and third-party data.

For more information about how RPO supports NRFU RI Quality Control activities, see Section 4.8.2.

4.4.5.3 Manage Daily NRFU Universe/Workload Updates [RPO 19-2.2.1.5.3]

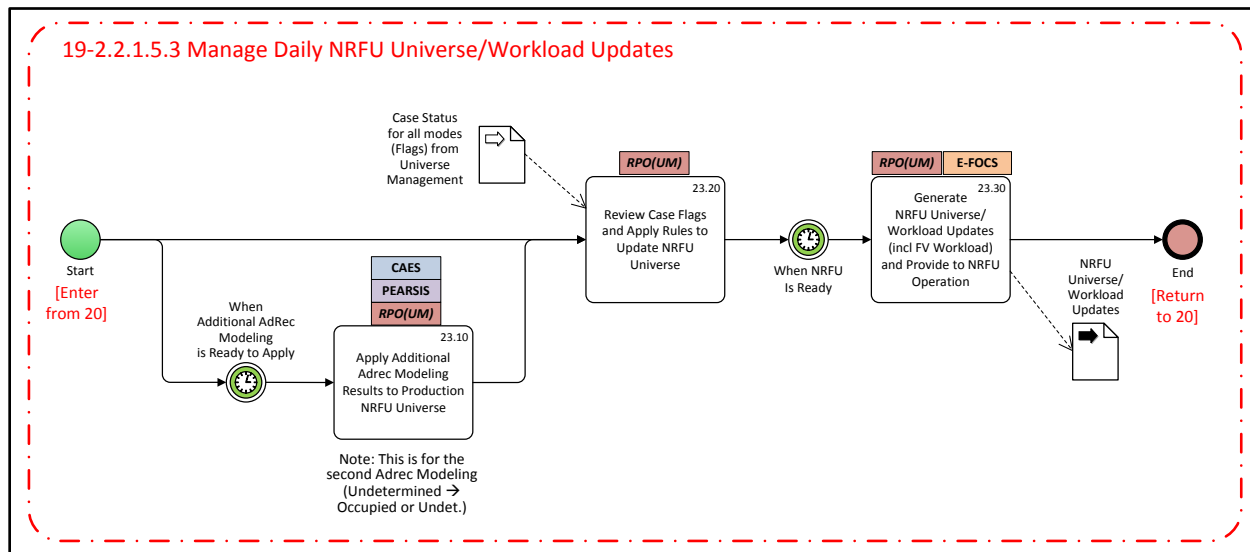


Figure 21: Manage Daily NRFU Universe/Workload Updates

Figure 21 represents daily status updates that occur when updates from all operations are complete. As these updates are received, flags are set and rules are applied to update the NRFU universe. When NRFU is ready, the universe/workload updates are provided to the NRFU operation for the next days workload.

4.5 Support Update Enumerate (UE) Data Collection [RPO 19-2.2.2]

As shown in Figure 13, the third activity in the RPO Data Collection Phase is “Support Update Enumerate (UE) Data Collection.” This activity is one of a set of operation-specific support activities collected under the “RPO Mode Management” Activity Area [RPO 19-2.2]. The RPO operational subactivity 19-2.2.2 is subdivided into the following constituent activities.

- Support Update Enumerate (UE) Data Collection [RPO 19-2.2.2].
 - Distribute UE Universe/Workload Information [RPO 19-2.2.2.1].
 - Receive UE Listing and UE Response/Status Data [RPO 19-2.2.2.2].
 - Manage UE Listing Results [RPO 19-2.2.2.3].
 - Manage UE Response Results [RPO 19-2.2.2.4].

A detailed view of the constituent activities that make up the “Support Update Enumerate (UE) Data Collection” operational subactivity is given in Figure 22 below.

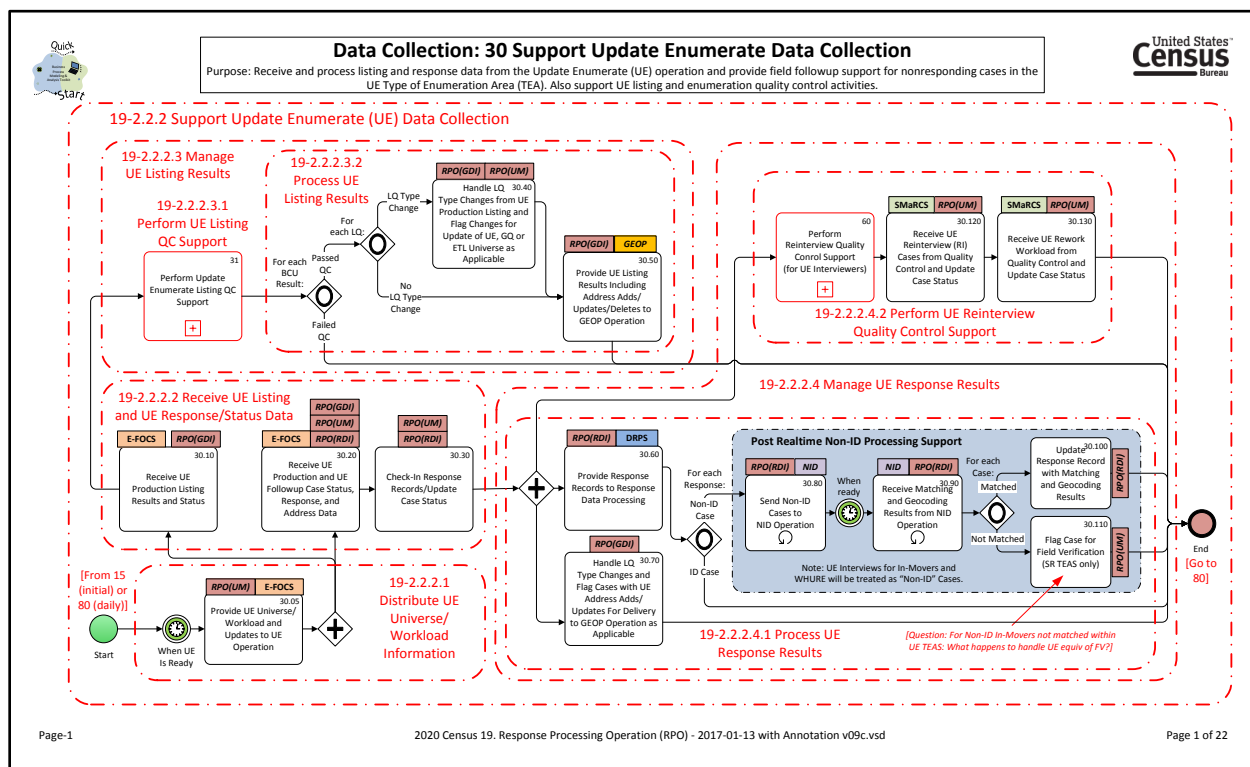


Figure 22: Support Update Enumerate (UE) Data Collection

Receive and process listing and response data from the Update Enumerate (UE) operation and provide field followup support for nonresponding cases in the UE TEA. Also support UE listing and enumeration quality control activities. The initial UE Universe/Workload is distributed for UE Production. During Update Enumerate Production, the work is distributed in BCUs and requires the completion of canvassing and enumeration. Update Enumerate submits updated listing, response data, and status to Response Processing Operations on a daily basis. Updates and Verifications to the address list are managed and updated on a daily basis.

Subsequent sections describe the “Support Update Enumerate (UE) Data Collection” operational subactivities in detail.

4.5.1 Distribute UE Universe/Workload Information [RPO 19-2.2.2.1]

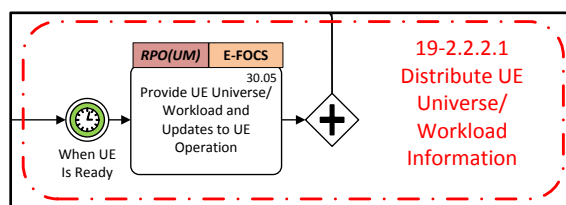


Figure 23: Distribute UE Universe/Workload Information

The initial UE Universe/Workload is distributed for UE Production. During Update Enumerate Production, the work is distributed in BCUs and requires the completion of canvassing and enumeration.

4.5.2 Receive UE Listing and UE Response/Status Data [RPO 19-2.2.2.2]

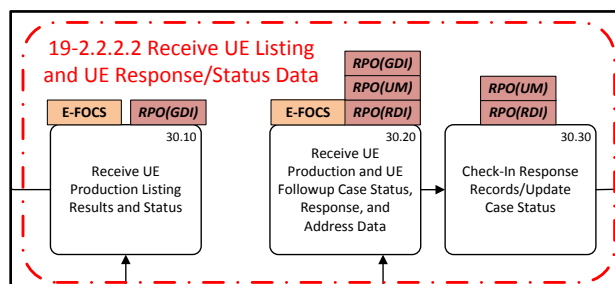


Figure 24: Receive UE Listing and UE Response/Status Data

Update Enumerate submits updated listing, response data, and status to Response Processing Operations on a daily basis.

4.5.3 Manage UE Listing Results [RPO 19-2.2.2.3]

The “Manage UE Listing Results” operational subactivity is subdivided into the following constituent activities.

- Manage UE Listing Results [RPO 19-2.2.2.3].
 - Perform UE Listing QC Support [RPO 19-2.2.2.3.1].
 - Process UE Listing Results [RPO 19-2.2.2.3.2].

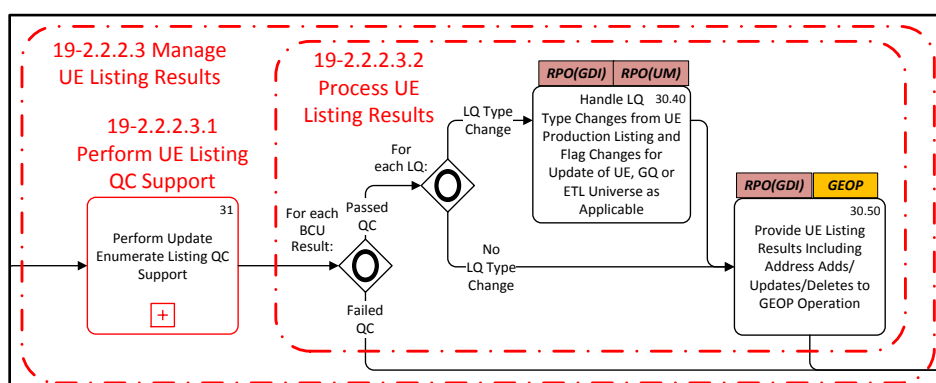


Figure 25: Manage UE Listing Results

Updates and Verifications to the address list are managed and updated on a daily basis.

4.5.3.1 Perform UE Listing QC Support [RPO 19-2.2.2.3.1]

Refer to Figure 25 for a view of the activity that calls the “Perform UE Listing QC Support” operational subactivity. “Perform UE Listing QC Support” is discussed further in Section 4.8.1.

Provide support for the Update Enumerate (UE) Listing Quality Control activities.

4.5.3.2 Process UE Listing Results [RPO 19-2.2.2.3.2]

Refer to Figure 25 for a view of the activity that makes up the “Process UE Listing Results” operational subactivity.

- Apply Results of LQ Type Changes from UE Production Listing to Update UE, GQ, or ETL Universe as Applicable.
- Provide UE Listing Results including Address Adds/Updates/Deletes to GEOP Operation.

4.5.4 Manage UE Response Results [RPO 19-2.2.2.4]

The “Manage UE Response Results” operational subactivity is subdivided into the following constituent activities.

- Manage UE Response Results [RPO 19-2.2.2.4].
 - Process UE Response Results [RPO 19-2.2.2.4.1].
 - Perform UE Reinterview QC Support [RPO 19-2.2.2.4.2].

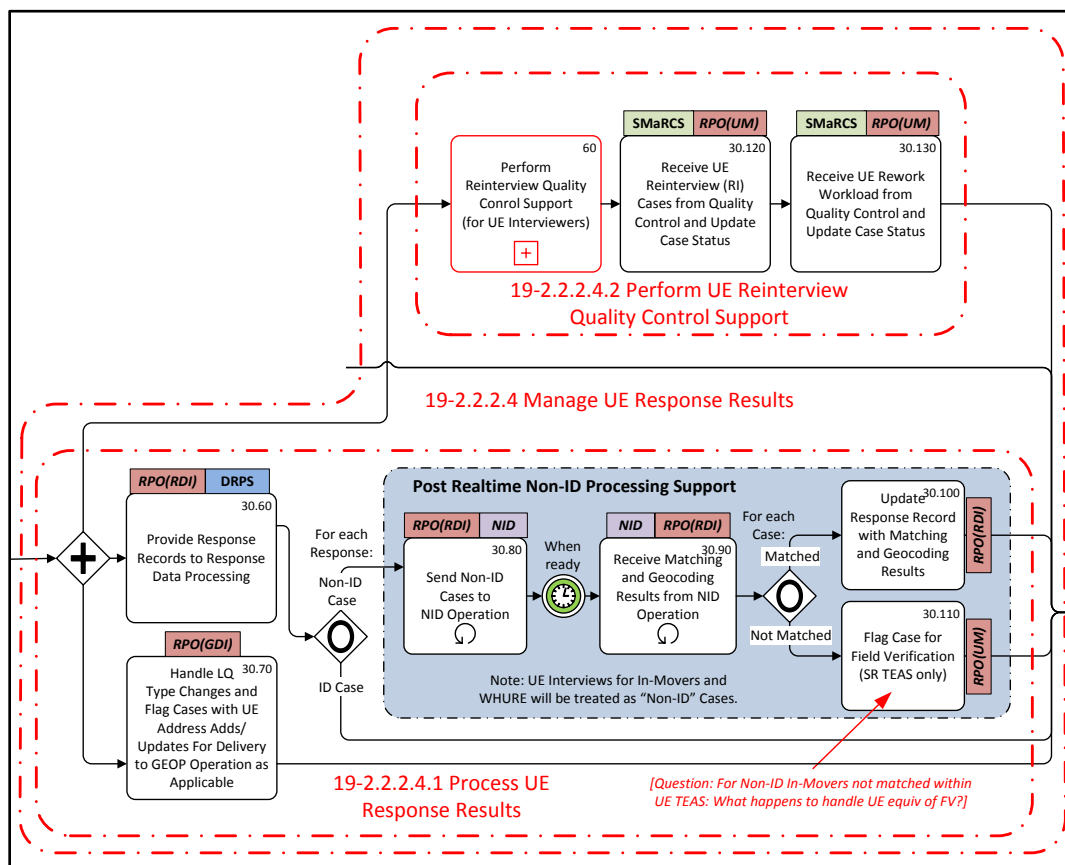


Figure 26: Manage UE Response Results

Response records coming from the Update Enumerate field operations will be sent to response data processing. Cases without an ID, will be processed through post realtime Non-ID Processing Support for matching and geocoding. In addition, Handle LQ type changes and Flag cases with UE address adds, updates and deletes are also processed and sent to Geographic operations for matching and geocoding.

4.5.4.1 Send Data

After each completed attempt (including completed interviews), UE sends the following types of data to RPO:

- **Status (operational data):** Response status describes the result of the attempt, for example, no one home, insufficient partial, or completed interview with the household. This data determines the next action for the attempt, if needed. Other operational data includes the language that the interview was conducted in, whether an interpreter was present, and Case Notes.
- **Response data:** Any questionnaire responses collected in an interview, housing unit status, household characteristics (rent/own, population count), individual characteristics (sex, race, undercount/overcount questions). Response data also includes Don't Know/Refuse selection and contact information.

- **Paradata:** Auxiliary data that provides information about the data collection process. Includes, for instance, time spent on an interview, the path through ECaSE ENUM, what specific keys were pressed, length of time on each question, how often help functionality was used. After a completed attempt, UE sends this type of data to PM (to the paradata repository in UTS).

4.5.4.2 Process UE Response Results [RPO 19-2.2.2.4.1]

Refer to Figure 26 for a view of the activity that makes up the “Process UE Response Results” operational subactivity.

The operational data that is sent to RPO determines the next action for the case. Status also includes address updates and address verification, and Non-ID. This status might include classification as a group quarter or Transitory Location that RPO would then route to the appropriate operation. For completed and sufficient partial cases, the response data are sent to RPO for processing. PM tracks paradata for analysis of quality of data and improvement of future census operations.

4.5.4.3 Perform UE Reinterview QC Support [RPO 19-2.2.2.4.2]

Refer to Figure 26 for a view of the activity that makes up the “Process UE Reinterview QC Support” operational subactivity.

All cases completed by an enumerator are eligible for quality control and can be selected intentionally or by random check. Any quality control cases that alert the Census Bureau to error or mishandling are put back into the UE universe for new enumeration.

UE includes a quality control (QC) function to ensure that the staff perform the work expected and that the data collected are correct. RPO Quality Control Management (QCM) function selects sample cases for RI. For reinterviews, all of the sample RI cases are done by CQA where there is a valid phone number; only cases that do not have a valid phone number will go to the field. Cases that are not resolved via CQA will also be sent to the field.

The UE RI IPT develops a plan for selecting the QC sample of cases for RI as described in this subsection. Any completed UE interview (by either census household member or proxy) is a candidate for RI selection, including cases with a vacant or delete status via proxy interview, field verification and multiunit manager visits.

To select cases for RI, RPO samples the completed cases using the Sampling, Matching, Reviewing, and Coding System (SMaRCS). RPO makes the following selections from the sufficient or completed UE production interviews:

- **Random:** Random selection from the eligible cases completed by every UE enumerator. For each enumerator, SMaRCS will randomly select one of the first three eligible cases completed and thereafter every n th eligible case, where n depends on the percentage of

cases UE wants to select for Random RI for each enumerator. For example, if approximately 5 percent is selected for Random RI, then $n=20$.

- **Analytic:** Selections based on a variety of outlier tests, such as GPS distance, interview length, and missing phone number, that focus the sample on cases that appear suspicious.
- **Supplemental:** Selection of an enumerator's future cases or manual selection of previously completed cases based on a case having computer-matching anomalies and the NRFU Clerical Resolution staff requesting more cases for further investigation of potential falsification.
- **Rework:** Selection of an enumerator's previously completed cases when the matching of a RI case with the enumerator's original case resulted in a determination of falsification.

UE Quality Control plan includes information for RPO on:

- Telephone RI Eligibility Rules.
- RI Sample Completion Rules.
- RI Anomalies Determination Rules (thresholds).
- RI Rework Rules (selection of cases for rework).

Automation allows for a smarter QC sample using paradata from ECaSE ENUM.

The results of these efforts are compared with the original results, and the appropriate actions are taken depending on the results. For reinterviews, RPO QCM does an automated comparison of the original results against the results from the reinterviews. If there are anomalies, these are sent to the NPC where additional research is conducted to determine how these cases should be handled. The results of this review (Adjudication Outcomes) are sent back to the RPO QCM function. In some cases, the adjudication requires that prior cases performed by the enumerator at fault be reworked. RPO puts these cases back into the UE workload as appropriate.

Once the data collection is complete, post-data collection processing begins. In this phase, the RPO DRP function performs supplemental enumeration for those cases that had been identified as Occupied through the administrative records modeling but for which a UE attempt was unsuccessful and no subsequent self-response was received. These cases are enumerated using data from administrative records and third-party data.

4.6 Support Group Quarters Data Collection [RPO 19-2.2.3]

As shown in Figure 13, the fourth activity in the RPO Data Collection Phase is "Support Group Quarters Data Collection." This activity is one of a set of operation-specific support activities collected under the "RPO Mode Management" Activity Area [RPO 19-2.2]. The RPO operational subactivity 19-2.2.3 is subdivided into the following constituent activities.

- Support Group Quarters (GQ) Data Collection [RPO 19-2.2.3].

- Provide GQ Advance Contact Data Support [RPO 19-2.2.3.1].
- Distribute GQ Enumeration Universe/Workload Information [RPO 19-2.2.3.2].
- Receive GQ Enumeration Response and Status Data [RPO 19-2.2.3.3].
- Manage GQ Enumeration Response Results [RPO 19-2.2.3.4].
- Provide Maritime GQ Enumeration Data Collection Paper Mailing Support [RPO 19-2.2.3.5].

A detailed view of the constituent activities that make up the “Support Group Quarters (GQ) Data Collection” operational subactivity is given in Figure 27 below.

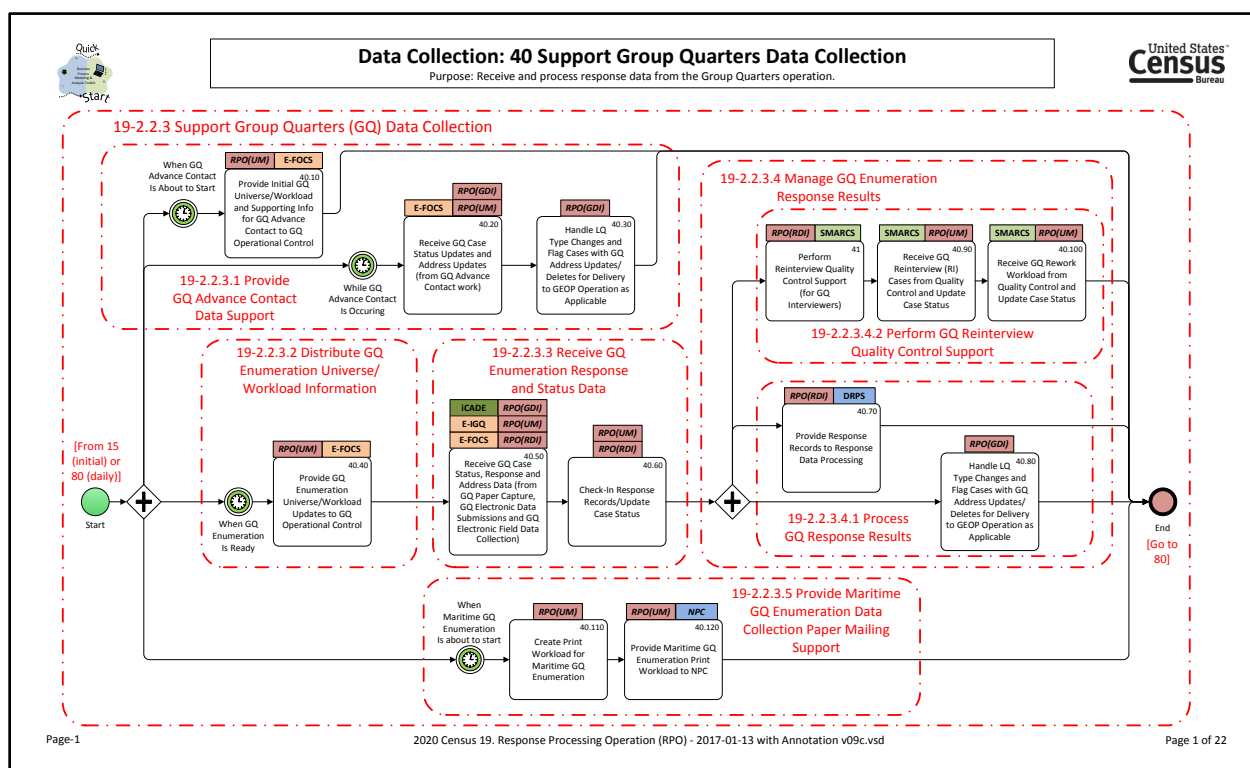


Figure 27: Support Group Quarters (GQ) Data Collection

RPO Receives and processes response data from the GQ operation.

Subsequent sections describe the “Support Group Quarters (GQ) Data Collection” operational subactivities in detail.

4.6.1 Provide GQ Advance Contact Data Support [RPO 19-2.2.3.1]

Refer to Figure 28 for a view of the activity that makes up the “Provide GQ Advance Contact Data Support” operational subactivity.

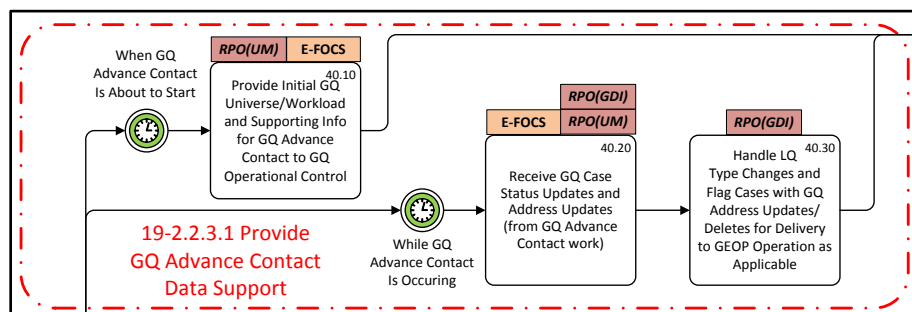


Figure 28: Provide GQ Advance Contact Data Support

Response processing will provide an initial GQ universe/workload for the purpose of advance contact. During this phase, GQ will update the universe in preparation for enumeration.

4.6.2 Distribute GQ Enumeration Universe/Workload Information [RPO 19-2.2.3.2]

Refer to Figure 29 for a view of the activity that makes up the “Distribute GQ Enumeration Universe/Workload Information” operational subactivity.

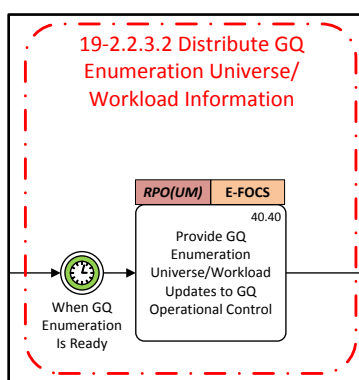


Figure 29: Distribute GQ Enumeration Universe/Workload Information

Once the universe is updated, it is distributed to start GQ enumeration.

4.6.3 Receive GQ Enumeration Response and Status Data [RPO 19-2.2.3.3]

Refer to Figure 30 for a view of the activity that makes up the “Receive GQ Enumeration Response and Status Data” operational subactivity.

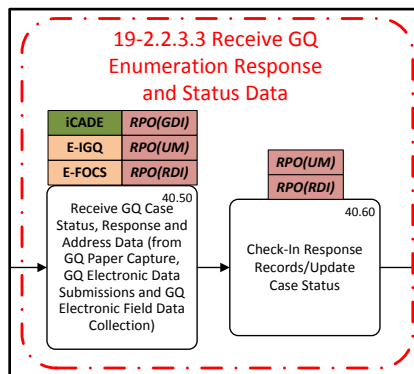


Figure 30: Receive GQ Enumeration Response and Status Data

RPO receives status data and response data back from the GQ Enumeration operation. Data are checked in and the statuses of cases are verified.

4.6.4 Manage GQ Enumeration Response Results [RPO 19-2.2.3.4]

The “Manage GQ Enumeration Response Results” operational subactivity is subdivided into the following constituent activities.

- Manage GQ Enumeration Response Results [RPO 19-2.2.3.4].
 - Process GQ Response Results [RPO 19-2.2.3.4.1].
 - Perform GQ Reinterview Quality Control Support [RPO 19-2.2.3.4.2].

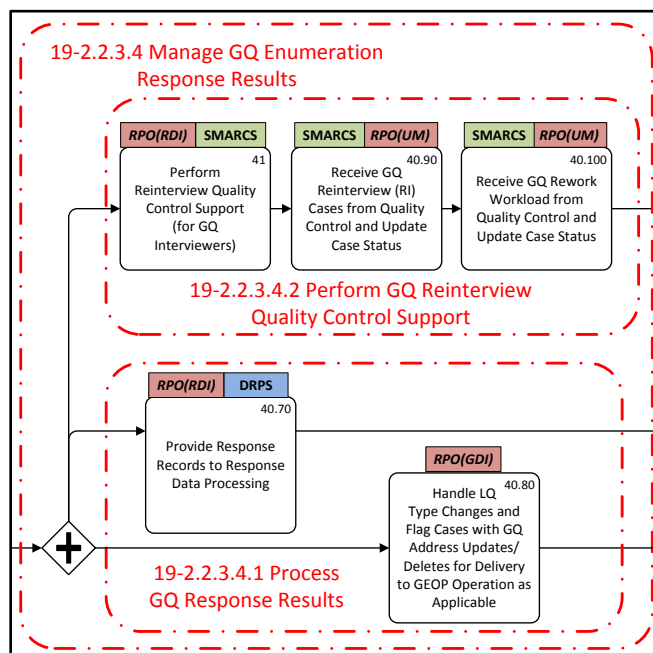


Figure 31: Manage GQ Enumeration Response Results

Updates and Verifications to the address list are managed and updated on a daily basis. Response records coming from the GQ field operations will be sent to Response data processing. In addition, Handle LQ type changes and Flag cases with GQ address adds and deletes are also processed and sent to Geographic operations for matching and geocoding.

4.6.4.1 Process GQ Response Results [RPO 19-2.2.3.4.1]

Refer to Figure 31 for a view of the activity that makes up the “Process GQ Response Results” operational subactivity.

The operational data that are sent to RPO determine the next action for the case. This status might include classification as a HU that RPO would then route to the appropriate operation. For completed and sufficient partial cases, the response data are sent to RPO for processing. PM tracks paradata for analysis of quality of data and improvement of future census operations.

4.6.4.2 Perform GQ Reinterview Quality Control Support [RPO 19-2.2.3.4.2]

Refer to Figure 31 for a view of the activity that makes up the “Provide GQ RI QC Support” operational subactivity.

RPO performs the GQ RI QC activities of performing QC support, receiving cases from RI QC and updating case status, and receiving the GQ rework workload from QC and updating case status.

4.6.5 Provide Maritime GQ Enumeration Data Collection Paper Mailing Support [RPO 19-2.2.3.5]

Refer to Figure 32 for a view of the activity that makes up the “Provide Maritime GQ Enumeration Data Collection Paper Mailing Support” operational subactivity.

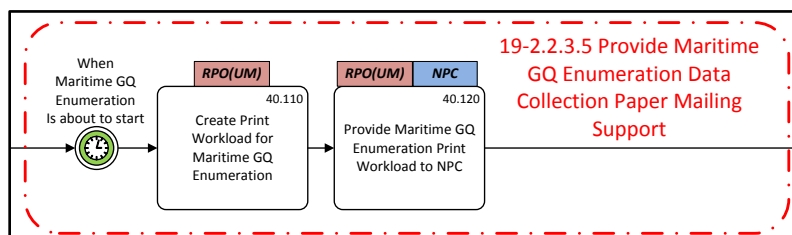


Figure 32: Provide Maritime GQ Enumeration Data Collection Paper Mailing Support

When Maritime GQ Enumeration is about to start, RPO creates a print workload in order for Maritime GQ enumeration to begin. During this process, spreadsheets of this workload are sent to NPC (National Processing Center) for further processing.

4.7 Support Enumeration at Transitory Locations (ETL) Data Collection [RPO 19-2.2.4]

As shown in Figure 13, the fifth activity in the RPO Data Collection Phase is “Support Enumeration at Transitory Locations (ETL) Data Collection.” This activity is one of a set of operation specific support activities collected under the “RPO Mode Management” Activity Area [RPO 19-2.2]. The RPO operational subactivity 19-2.2.4 is subdivided into the following constituent activities.

- Support Enumeration at Transitory Locations (ETL) Data Collection [RPO 19-2.2.4].
 - Provide ETL Advance Contact Data Support [RPO 19-2.2.4.1].
 - Provide Distribute ETL Enumeration Universe/Workload Information [RPO 19-2.2.4.2].
 - Receive ETL Response and Status Data [RPO 19-2.2.4.3].
 - Manage ETL Response Results [RPO 19-2.2.4.4].

A detailed view of the constituent activities that make up the “Support Enumeration at Transitory Locations (ETL) Data Collection” operational subactivity is given in Figure 33 below.

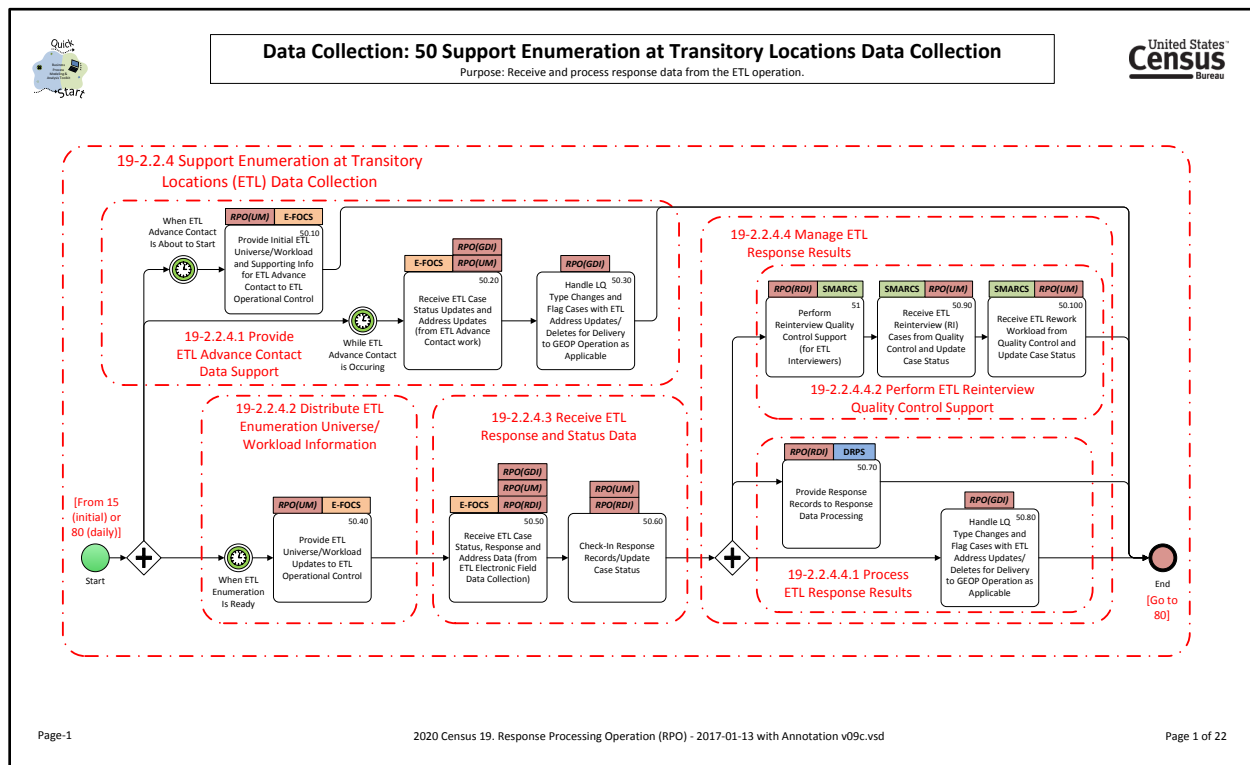


Figure 33: Support Enumeration at Transitory Locations (ETL) Data Collection

RPO receives and processes response data from the ETL operation.

4.7.1 Provide ETL Advance Contact Data Support [RPO 19-2.2.4.1]

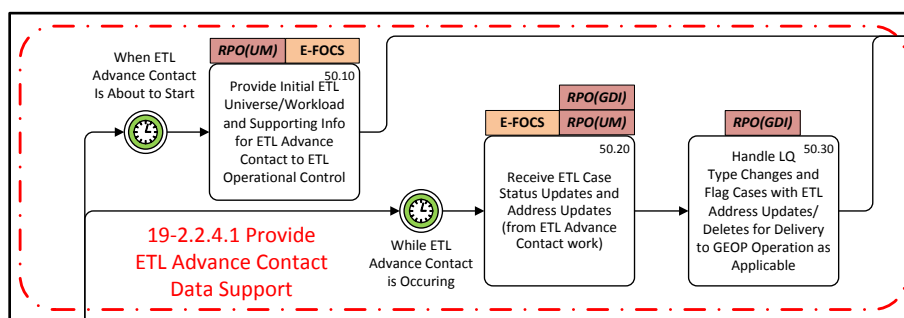


Figure 34: Provide ETL Advance Contact Data Support

Response processing will provide an initial ETL Universe/Workload for the purpose of advance contact. During this phase, ETL will update the universe in preparation for enumeration.

4.7.2 Distribute ETL Enumeration Universe/Workload Information [RPO 19-2.2.4.2]

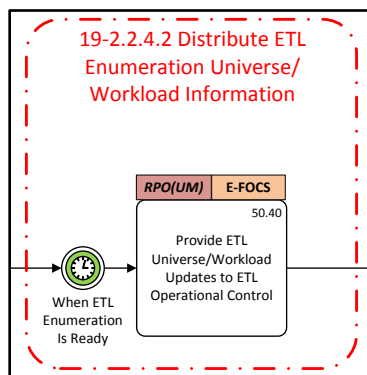


Figure 35: Distribute ETL Enumeration Universe/Workload Information

The initial ETL Universe/Workload gets distributed for ETL Production. During ETL Production, the work is distributed and requires the completion of enumeration.

4.7.3 Receive ETL Response and Status Data [RPO 19-2.2.4.3]

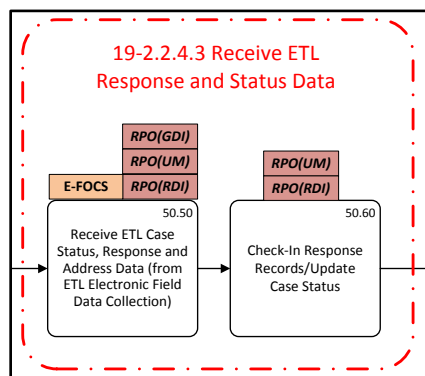


Figure 36: Receive ETL Response and Status Data

RPO receives status data and response data back from the ETL Enumeration operation. Data are checked in, and the statuses of cases are verified.

4.7.4 Manage ETL Response Results [RPO 19-2.2.4.4]

As shown in Figure 37, the “Manage ETL Response Results” operational subactivity is subdivided into the following constituent activities.

- Manage ETL Response Results [RPO 19-2.2.4.4].
 - Process ETL Response Results [RPO 19-2.2.4.4.1].
 - Perform ETL Reinterview Quality Control Support [RPO 19-2.2.4.4.2].

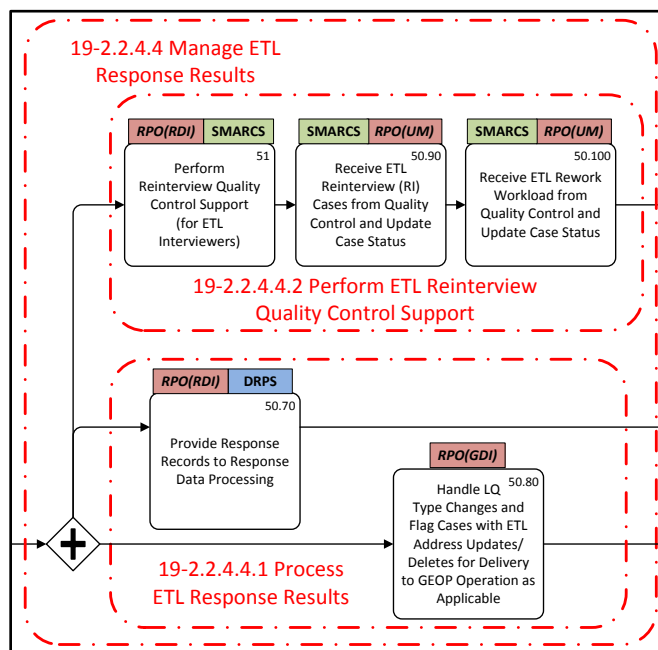


Figure 37: Manage ETL Response Results

Updates and Verifications to the address list are managed and updated on a daily basis.

4.7.4.1 Process ETL Response Results [RPO 19-2.2.4.4.1]

The operational data that are sent to RPO determine the next action for the case. This status might include classification as a HU that RPO would then route to the appropriate operation. For completed and sufficient partial cases, the response data are sent to RPO for processing. PM tracks paradata for analysis of quality of data and improvement of future census operations.

4.7.4.2 Perform ETL Reinterview Quality Control Support [RPO 19-2.2.4.4.2]

Provide support for the ETL Listing Quality Control activities.

4.8 Support Field Quality Control Activities (For Field Listing and Enumeration Operations)

This section describes RPO's support for Quality Control (QC) activities, which are embedded in the process models discussed above.

RPO Provides Field Quality Control (For Field Listing and Enumeration Operations)

4.8.1 Perform UE Listing QC Support [RPO 19-2.2.2.3.1]

The “Perform UE Listing QC Support” operational subactivity is subdivided into the following constituent activities.

- Select Listing QC Sample for UE Field Listers [RPO 19-2.2.2.3.1.1].
- Provide Listing QC Workload to UE Operation (NPC and Field) [RPO 19-2.2.2.3.1.2].
- Receive Listing QC Results [19-2.2.2.3.1.3].
- Support Listing QC Anomaly Resolution Activities [RPO 19-2.2.2.3.1.4].

A detailed view of the constituent activities that make up the “Perform UE Listing QC Support” operational subactivity is given in Figure 38 below.

Refer to Figure 25 for a view of the activity that calls the “Perform UE Listing QC Support” operational subactivity.

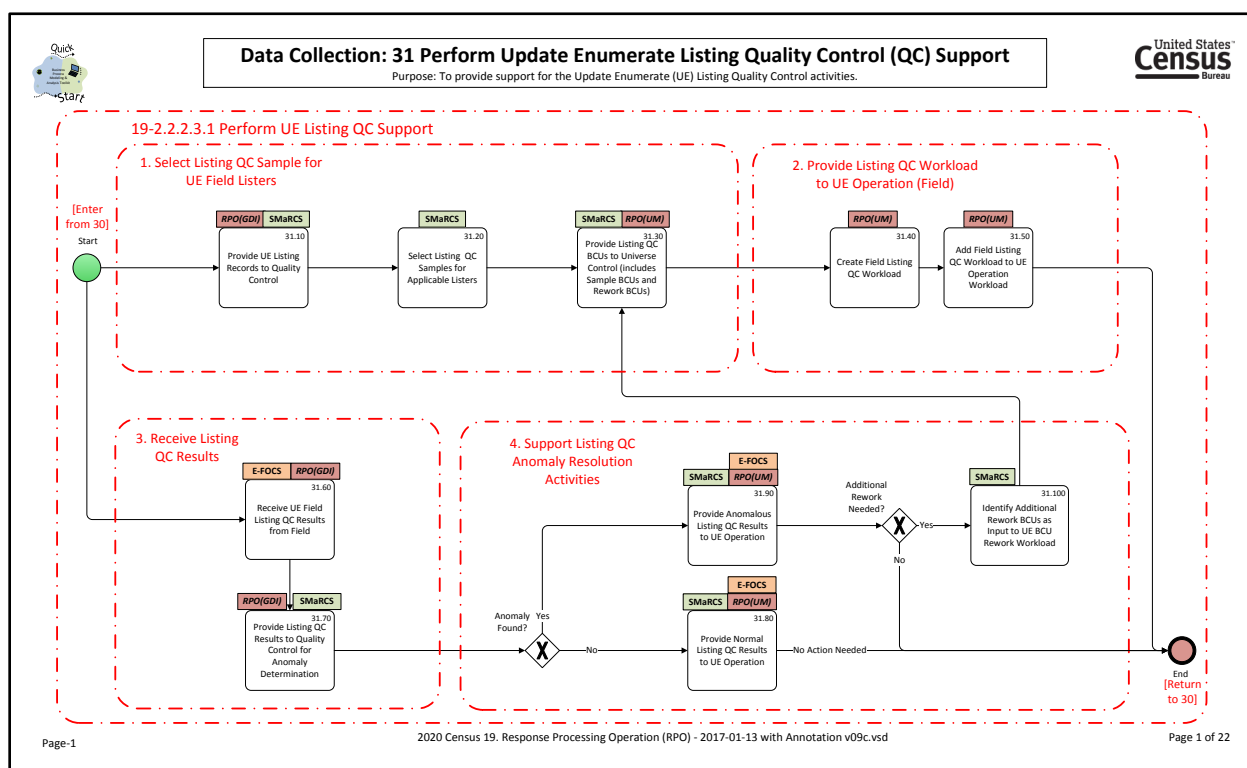


Figure 38: Perform UE Listing QC Support

RPO provides support for the UE Listing Quality Control activities. These activities are discussed in detail in the following sections.

4.8.1.1 Select Listing QC Sample for UE Field Listers [RPO 19-2.2.2.3.1.1]

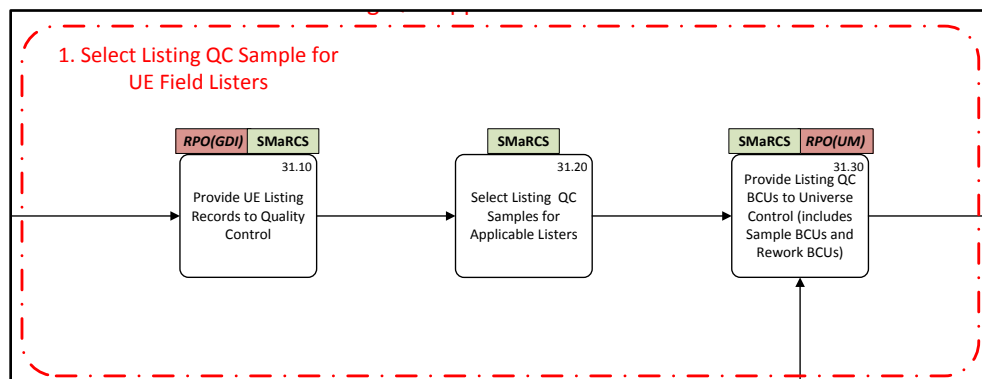


Figure 39: Select Listing QC Sample for UE Field Listers

RPO provides listing records to Quality Control. BCUs can be selected for listing QC for two reasons:

Analytic: Based on statistical calculations, BCUs that contain housing units that are historically prone to increased listing error or show enumerator production listing procedural error will be sampled. BCUs completed by these enumerators will be chosen for Listing QC to investigate if these enumerators are following proper enumeration procedures.

Random: Random Listing QC verifies a random sample of the eligible BCUs completed by every enumerator.

4.8.1.2 Provide Listing QC Workload to UE Operation (NPC and Field) [RPO 19-2.2.2.3.1.2]

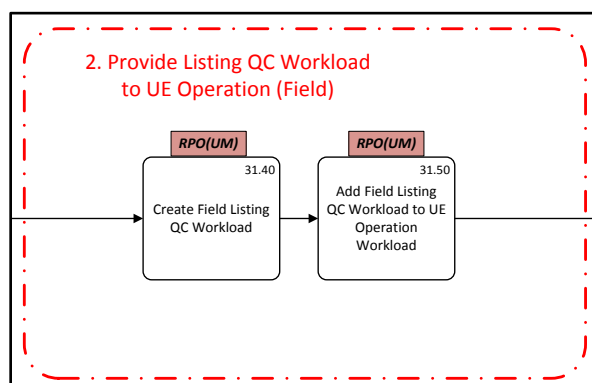


Figure 40: Provide Listing QC Workload to UE Operation (NPC and Field)

For BCUs that fail a quality check, they are sent to listing QC to rework these cases. RPO provides a workload Once a BCU is selected for Listing QC, it will be assigned to a QC enumerator.

4.8.1.3 Receive Listing QC Results [19-2.2.2.3.1.3]

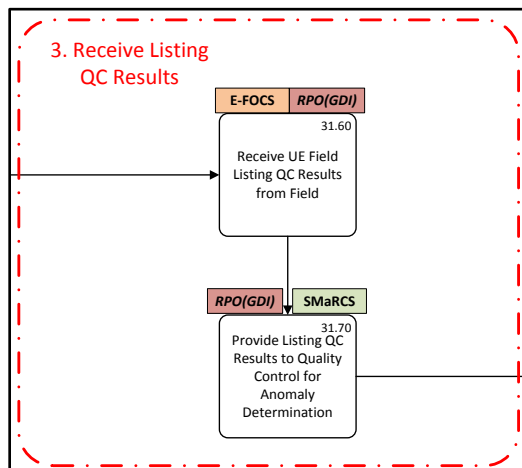


Figure 41: Receive Listing QC Results

Once RPO receives the completed listing QC BCUs, RPO will send these reworked BCUs to SMaRCS to check for any anomalies.

4.8.1.4 Support Listing QC Anomaly Resolution Activities [RPO 19-2.2.2.3.1.4]

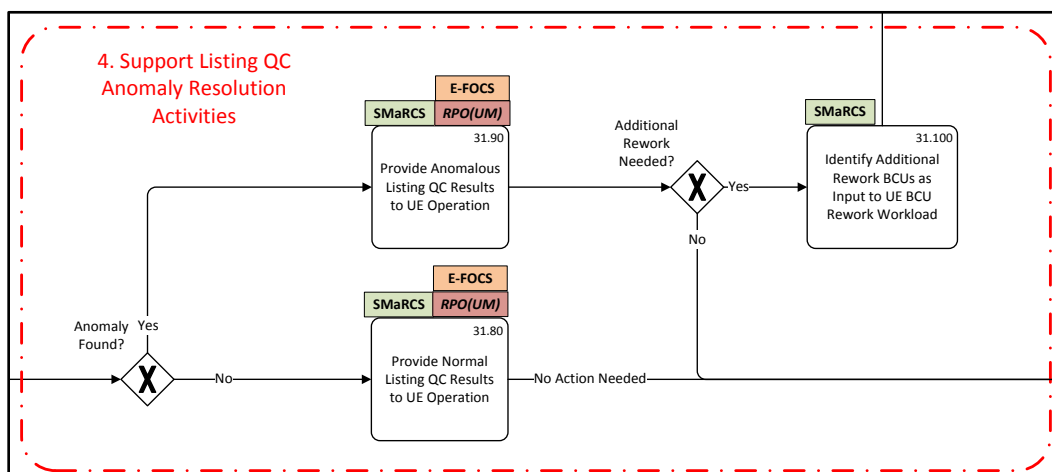


Figure 42: Support Listing QC Anomaly Resolution Activities

Once SMaRCS completes a quality check on reworked BCUs. Any identified BCUs requiring additional rework are inputted to the UE BCU rework workload and sent back to the UE operation for completion and processing.

4.8.2 Perform Reinterview Quality Control Support (For NRFU or UE Interviewers)

Figure 43 shows the BPM for the Perform RI Quality Control Support activity area and its constituent activities.

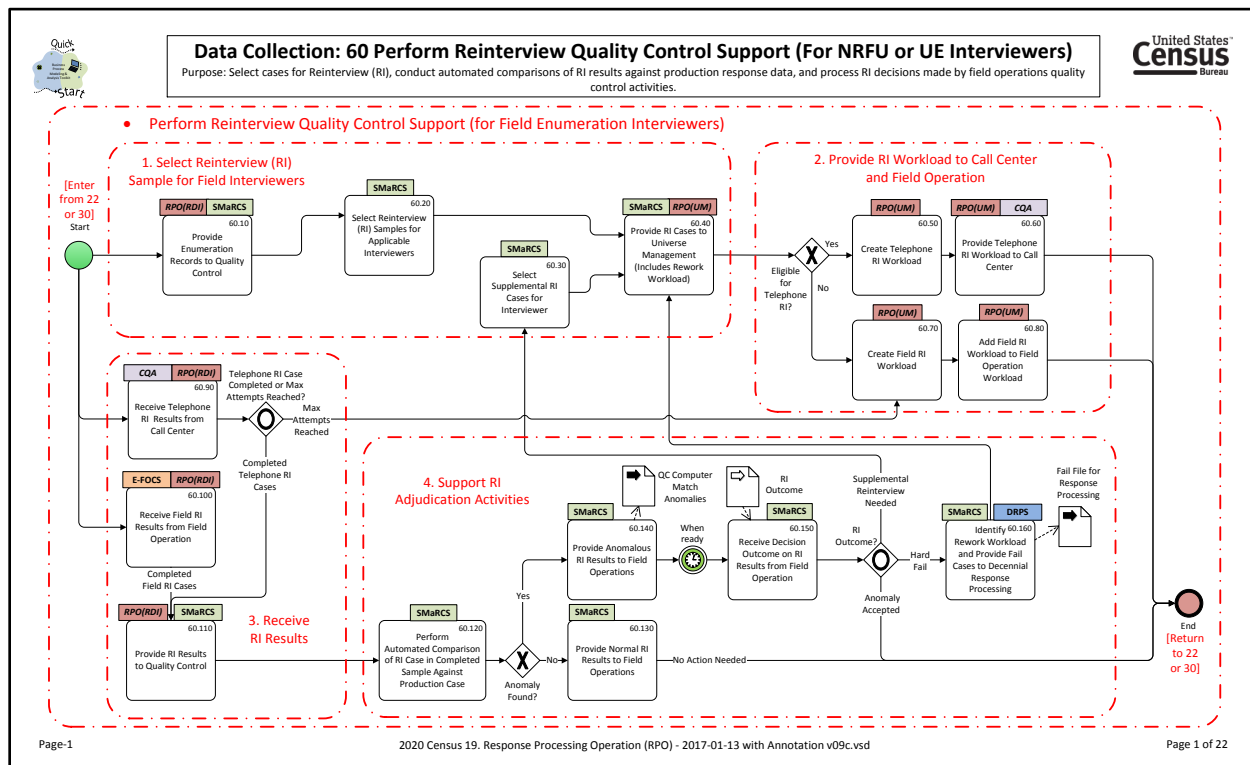


Figure 43: Perform Reinterview Quality Control Support (For NRFU or UE Interviewers)
Constituent Activities

The Perform RI Quality Control Support operational subactivity is subdivided into the following constituent activities.

- Perform RI Quality Control Support (Field Enumeration Interviewers).
 - Select (RI) Sample for Field Interviewers.
 - Provide RI Workload to Call Center and Field Operation.
 - Receive RI Results.
 - Support RI Adjudication Activities.

Purpose

The Census Bureau performs quality control activities to ensure the quality of interviews that are conducted by NRFU or UE interviewers. The purpose is to ensure that each NRFU or UE interviewer is performing their duties correctly and producing valid response data.

Subsequent sections describe the Perform Reinterview Quality Control Support operational subactivities in detail.

4.8.2.1 Select Reinterview (RI) Sample for Field Interviewers

A detailed view of the constituent activities that make up the “Select Reinterview (RI) Sample for Field Interviewers” operational subactivity is given in Figure 44 below.

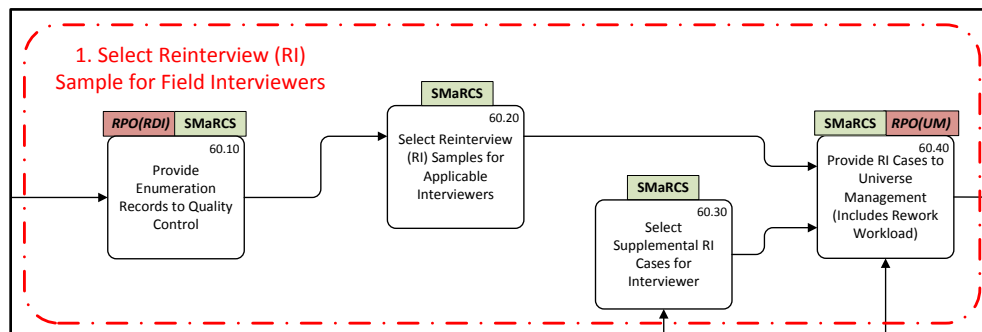


Figure 44: Select Reinterview (RI) QC Sample for Field Interviewers

In this subactivity, samples of an interviewer’s work (cases where the interviewer has conducted an interview) are selected for review. The cases are provided to universe management to create a workload of cases to be reviewed. If the interviewer has been found to be deficient on the cases reviewed, then other cases that interviewer has worked are also suspect. These supplemental cases are also provided to universe management for review and/or rework.

4.8.2.2 Provide RI Workload to Call Center and Field Operation

A detailed view of the constituent activities that make up the “Provide RI Workload to Call Center and Field Operation” operational subactivity is given in Figure 45 below.

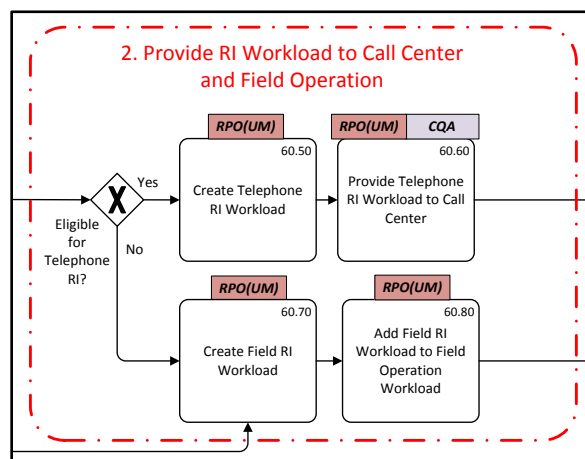


Figure 45: Provide RI Workload to Call Center and Field Operation

The Census Bureau attempts to conduct operations in a cost-effective manner. Cases to be checked are handled by the least costly option where possible. Cases that can be checked by phone are passed to the telephone RI workload and handled by the CQA operation. Cases without a valid phone number or otherwise ineligible for phone contact are passed to the field RI workload and handled in-person by the field operation.

4.8.2.3 Receive RI Results

A detailed view of the constituent activities that make up the “Receive RI Results” operational subactivity is given in Figure 46 below.

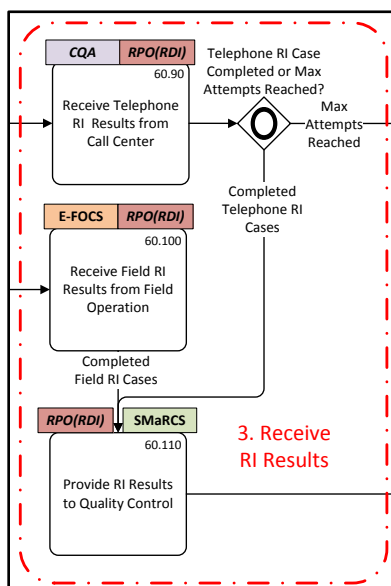


Figure 46: Receive RI Results

CQA and field operations each attempt to verify the quality of the reinterview results for the cases selected for review. Each operation has a limited number of attempts per case. Final results of the CQA and field operations for each case in the workload are passed back to quality control.

4.8.2.4 Support RI Adjudication Activities

A detailed view of the constituent activities that make up the “Support RI Adjudication Activities” operational subactivity is given in Figure 47 below.

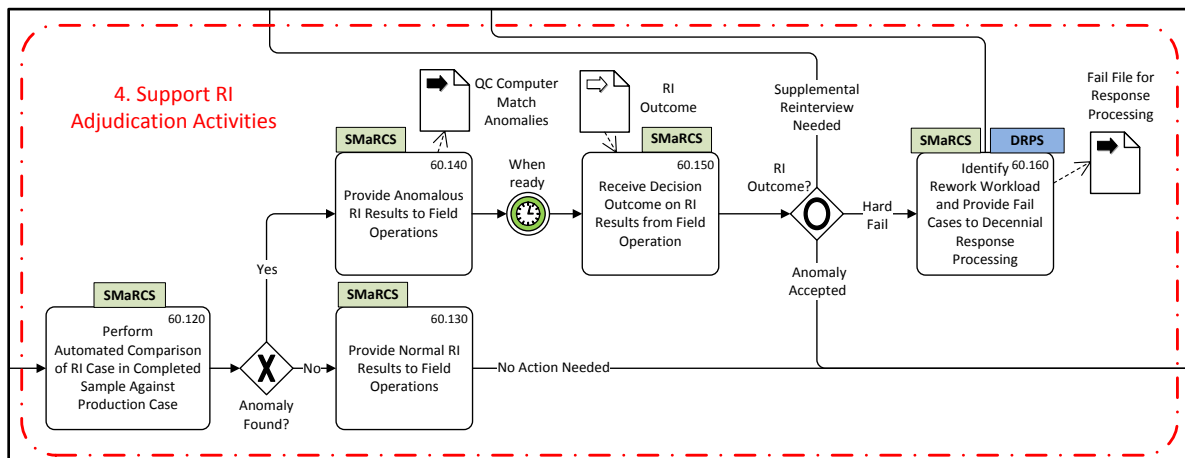


Figure 47: Support RI Adjudication Activities

Adjudication activities attempt to make a decision about the quality of an interviewer’s case work. Results from CQA and field QC are run through a series of automated checks and human review. RI cases are compared against production cases. When anomalies are detected, they are flagged for further review. Some anomalies are accepted, some are flagged for supplemental RI, and some are marked as “Hard Fail,” where the results do not appear to match reality. Hard fails end up in the “Fail File” for further action by RPO.

4.9 RPO Enumeration Universe Management and Data Collection Phase Processing [RPO 19-2.3]

Data collection is the second and central phase within RPO. This phase concentrates on collecting data (hereafter called response data) from people who respond (hereafter called respondents) to decennial census questionnaires. RPO treats all response data equally regardless of what mode (internet self-response, phone interview, mailing in a filled paper form, in-person interview) the respondent has chosen to use.

During the first phase of RPO operations, a universe of cases needing enumeration (hereafter called initial enumeration universe or just the universe) was created. In the data collection phase, this universe will now be used daily by four major data collection operations:

- NRFU operation shown on BPM 20.
- UE operation shown on BPM 30.
- GQ operation shown on BPM 40.
- ETL operation shown on BPM 50.

Some operations may begin or end on an earlier date than other operations. Each operation's schedule is tightly managed and coordinated with the schedules of other operations for efficiency.

During data collection, each of the four operations operates on a daily cadence. The general daily cadence pattern for all four data collection operations is:

- At start of day, the operation receives a workload of cases specific to just that operation. For example, the GQ operation would only receive cases where each LQ address is for a group quarter.
- The operation distributes cases in its workload for that day to its workforce of enumerators. Enumerators who work in the field that day will receive a new set of cases to their mobile data collection device.
- During the day, the operation's enumerators work on cases and attempt to collect response data.
- At end of day, the operation passes data back to RPO to help build the next day's workload. The data that each operation sends back to RPO include:
 - Response data collected by the operation's enumerators.
 - LQ type changes.
 - Dangerous address data (threats to enumerators, large animals, etc.).
- At end of day, RPO collects the data returned by each operation and performs a variety of processing steps on it. If a LQ was determined to need a type change (e.g. a former group quarter has now been changed into a collection of individual apartments), then the case may be moved from one operation's workload to another operation's workload.
- Before morning, RPO distributes to each operation a new workload, and the daily cadence starts over.

During data collection phase, RPO's goals are:

- Give each operation the workload it needs for the coming day.
- Collect and process nightly response data coming from each operation.
- Manage the entire enumeration universe, track each case, and ensure that all possible cases are enumerated within the prescribed timeframe.

During data collection phase, each operation's goal is to work daily to reduce the number of cases remaining in the universe. A successful operation would have few remaining cases in the universe at the end of the data collection phase.

As shown in Figure 13, the sixth activity in the RPO Data Collection Phase is “RPO Enumeration Universe Management and Data Collection Phase Processing.” This operational subactivity is subdivided into the following constituent activities.

- RPO Enumeration Universe Management and Data Collection Phase Processing [RPO 19-2.3].
 - Manage Daily RPO Enumeration Universe/Workload Updates [RPO 19-2.3.1].
 - Provide Data to HQ Ops [RPO 19-2.3.2].
 - Perform Data Collection Phase Processing Work [RPO 19-2.3.3].

A detailed view of the constituent activities that make up the RPO Enumeration Universe Management and Data Collection Phase Processing [RPO 19-2.3] activity area operational subactivity is given in Figure 48 below.

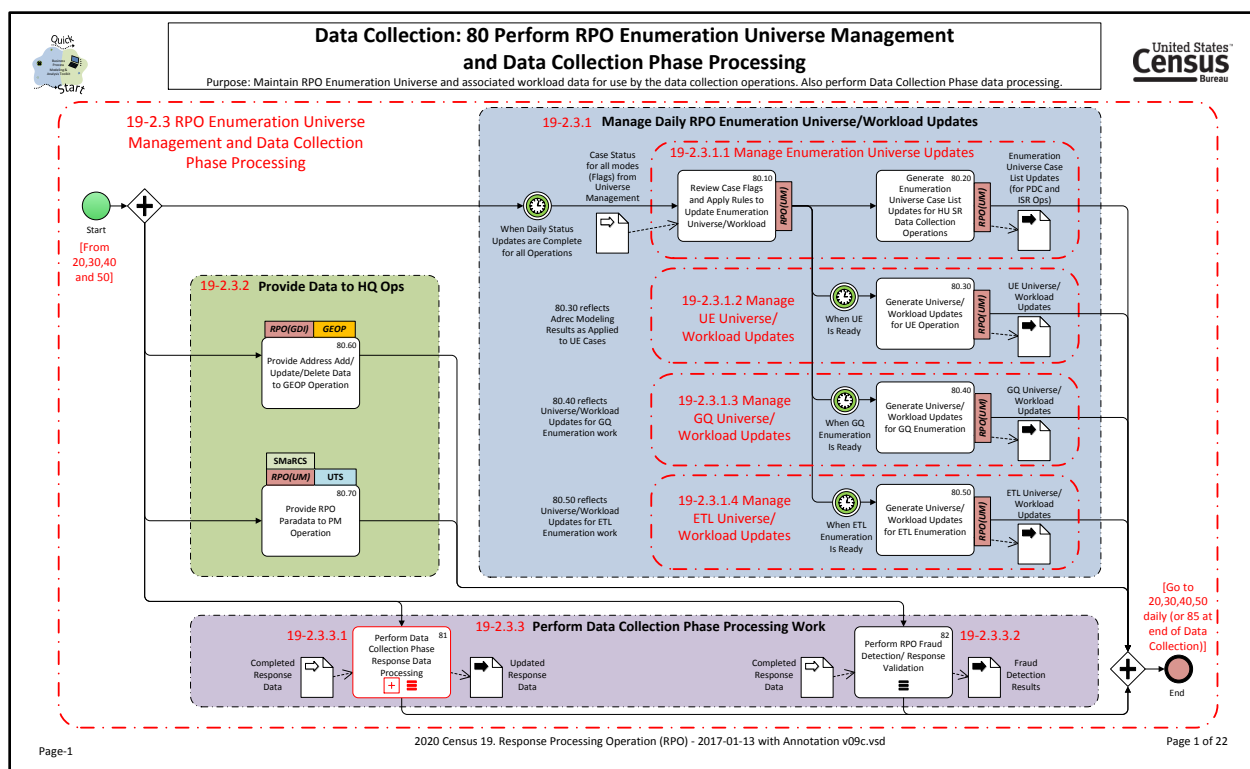


Figure 48: RPO Enumeration Universe Management and Data Collection Phase Processing [RPO 19-2.3] Constituent Activities

The activities in RPO 19-2.3 mainly cover the daily operations of RPO after the initial universe for each data collection operation has been created and delivered.

Subsequent sections describe the RPO Enumeration Universe Management and Data Collection Phase Processing operational subactivities in detail.

4.9.1 Manage Daily RPO Enumeration Universe/Workload Updates [RPO 19-2.3.1]

The “Manage Daily RPO Enumeration Universe/Workload Updates” operational subactivity is subdivided into the following constituent activities.

- Manage Daily RPO Enumeration Universe/Workload Updates [RPO 19-2.3.1].
 - Manage Enumeration Universe Updates [RPO 19-2.3.1.1].
 - Manage UE Universe/Workload Updates [RPO 19-2.3.1.2].
 - Manage GQ Universe/Workload Updates [RPO 19-2.3.1.3].
 - Manage ETL Universe/Workload Updates [RPO 19-2.3.1.4].

A detailed view of the constituent activities that make up the “Manage Daily RPO Enumeration Universe/Workload Updates” operational subactivity is given in Figure 49 below.

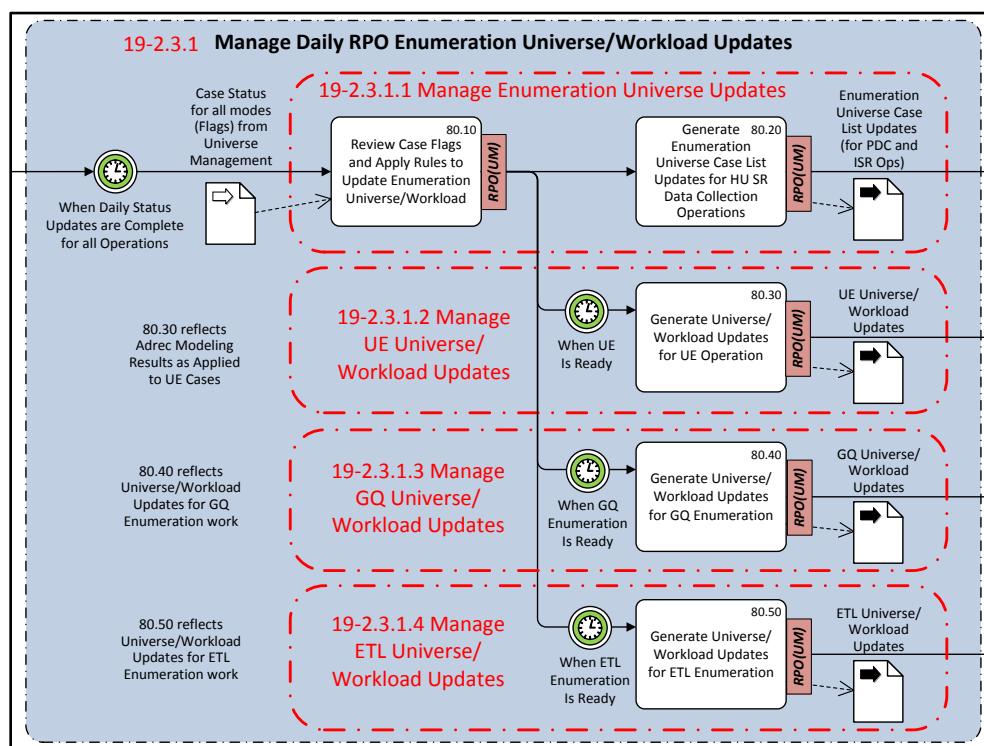


Figure 49: Manage Daily RPO Enumeration Universe/Workload Updates

In RPO 19-2.3.1, the Response Processing Operation is performing nightly processing after each of the four data collection operations has completed their daily casework and sent that day’s collected response data and other data back to RPO. Case flags are reviewed, rules are applied, and cases are moved from one operation to another as needed. The final result of RPO’s nightly processing is a new workload sent back to each of the four data collection operations so they can begin their next day’s collection activities.

Case status flags are set by each operation to indicate where a specific case needs action from RPO during nightly processing. RPO removes completed cases from the entire collection universe since the data for that case has already been collected. HUs that are determined to be vacant are flagged. Cases that are found to be in the wrong operation are flagged to be moved to another operation. RPO checks all flags, takes appropriate action, and generates the appropriate new universe/workload update for each of the four operations.

4.9.1.1 Manage Enumeration Universe Updates [RPO 19-2.3.1.1]

Refer to Figure 49 for a view of the activities that make up the “Manage Enumeration Universe Updates” operational subactivity.

This activity covers RPO’s nightly processing cycle for Self-Response operations (ISR, CQA, and PDC). Any new cases and any case type changes are provided as Case List updates.

4.9.1.2 Manage UE Universe/Workload Updates [RPO 19-2.3.1.2]

Refer to Figure 49 for a view of the activities that make up the “Manage UE Universe/Workload Updates” operational subactivity.

This activity covers RPO’s nightly processing cycle for UE operations. Output to UE is a workload of cases to be assigned to UE enumerators for them to collect response data.

4.9.1.3 Manage GQ Universe/Workload Updates [RPO 19-2.3.1.3]

Refer to Figure 49 for a view of the activities that make up the “Manage GQ Universe/Workload Updates” operational subactivity.

This activity covers RPO’s nightly processing cycle for GQ operations. Output to GQ is a workload of cases to be assigned to GQ enumerators for them to collect response data on Group Quarters.

4.9.1.4 Manage ETL Universe/Workload Updates [RPO 19-2.3.1.4]

Refer to Figure 49 for a view of the activities that make up the “Manage ETL Universe/Workload Updates” operational subactivity.

This activity covers RPO’s nightly processing cycle for ETL operations. Output to ETL is a workload of cases to be assigned to ETL enumerators for them to collect response data at transitory locations.

4.9.2 Provide Data to HQ Ops [RPO 19-2.3.2]

A detailed view of the constituent activities that make up the “Provide Data to HQ Ops” operational subactivity is given in Figure 50 below.

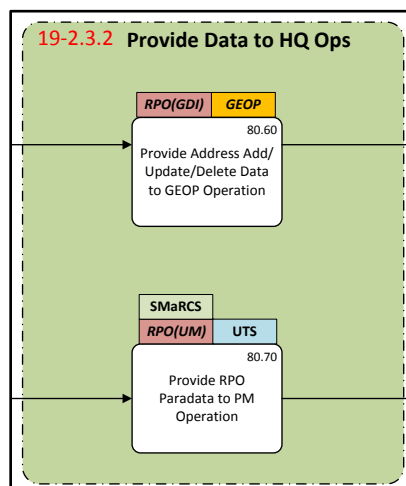


Figure 50: Provide Data to HQ Ops

Data collected nightly from the four operations is passed on to other operations that also need it.

Address data collected about HUs is passed to Geographic Operations (GEOP). GEOP processes the address data or address list changes and performs the appropriate add, delete or update operation in MAF/TIGER.

Paradata (mainly data about the responses that is not the data entered by a respondent) is passed to the Program Management (PM) operation for tracking and management.

4.9.3 Perform Data Collection Phase Processing Work [RPO 19-2.3.3]

The “Perform Data Collection Phase Processing Work” operational subactivity is subdivided into the following constituent activities.

- Perform Data Collection Phase Processing Work [RPO 19-2.3.3].
 - Perform Data Collection Phase Response Data Processing [RPO 19-2.3.3.1].
 - Perform RPO Fraud Detection/Response Validation [RPO 19-2.3.3.2].

A detailed view of the two activities that make up the “Perform Data Collection Phase Processing Work” operational subactivity is given in Figure 51 below.

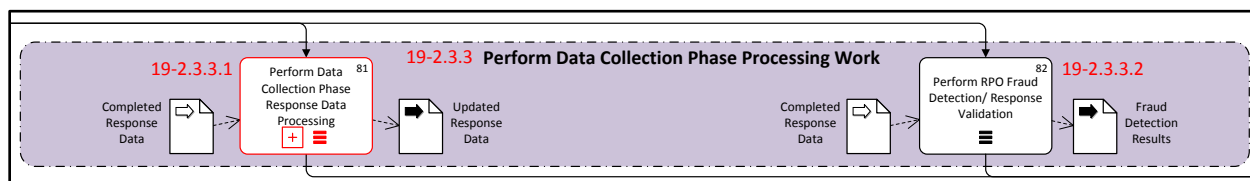


Figure 51: Perform Data Collection Phase Processing Work

This activity covers nightly data processing performed on response data from the four data collection operations. This activity includes performing validation checks on the collected response data and detection of fraudulent response for further action.

4.9.3.1 Perform Data Collection Phase Response Data Processing [RPO 19-2.3.3.1]

The constituent activities that make up the “Perform Data Collection Phase Response Data Processing” subactivity are shown in Figure 52 below.

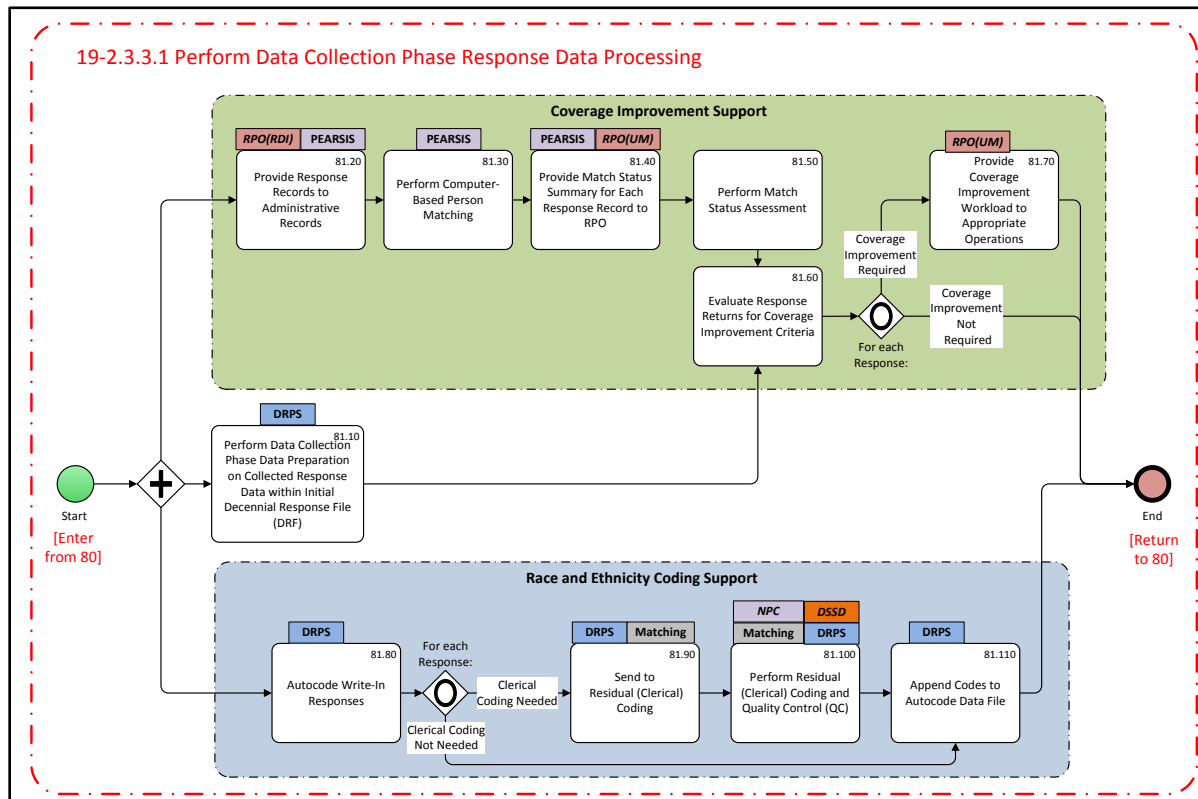


Figure 52: Perform Data Collection Phase Response Data Processing

This activity supports CI and the Race and Ethnicity Coding activities.

4.9.3.2 Perform RPO Fraud Detection/Response Validation [RPO 19-2.3.3.2]

Refer back to Figure 51 for a view of the context for the “Perform RPO Fraud Detection/Response Validation” operational subactivity.

For security purposes, the specifics of fraud detection and response validation will not be detailed here.

4.10 Specific Operational Assumptions

RPO will use the Operational Control System (OCS) for data collection control and management.

As noted above, the RPO Post-Data Collection processing activities will be added to a future release of this document.

5. Cost Factors

5.1 Background

The investment in RPO is projected to influence (reduce ↓ or increase ↑) the 2020 Census overall costs in the following ways:

- Real-time adjustment of the universe adjusted based on response status. (↓)
- Use of administrative records and third-party data (see NRFU). (↓)
- Flexible, rule-based decisions on most cost-effective approach for collecting responses (expected to reduce in-field workloads). (↓)

5.2 Relevant IDEF0 Mechanisms

While the RPO Operation is not a major cost driver for the 2020 Census, the following mechanisms from the IDEF0 Context Diagram represent the resources used to support this operation and comprise part of the 2020 Census cost elements:

Staff

- HQ Staff
- NPC Staff

Sites

- HQ
- Data Hosting Sites
- NPC

Systems

- ECaSE
- CaRDS
- PEARSIS
- SMarCS
- IPTS
- CAES
- DRPS
- Data Products and Dissemination
- UTS

Other

- HQ Office IT Infrastructure
- Census networks

6. Measures of Success

For the 2020 Census operations, the corresponding Measures of Success will be documented in the operational assessment study plans and final reports. The operational assessment study plan documents the criteria that will be used to define successful completion of the operation. The operational assessment report will provide results on whether the criteria were met.

In general, operational assessments report on planned to actual variances in budget, schedules, and production and training workloads. The corresponding Measures of Success (as documented in the operational assessment study plan) include variances that exceed established thresholds. See *Content Guidelines for the 2020 Census Operational Assessments* for the potential scope of assessment.

Types of success measures include:

- **Process Measures** that indicate how well the process works, typically including measures related to completion dates, rates, and productivity rates
- **Cost Measures** that drive the cost of the operation and comparisons of actual costs to planned budgets. Costs can include workload as well as different types of resource costs
- **Measures of the Quality** of the results of the operation, typically including things such as rework rates, error rates, and coverage rates

See the corresponding operational assessment study plan and report for the Response Processing Operation (RPO) for details on the measures of success.

Appendix A – Acronyms and Terminology

Table 13 lists the acronyms and abbreviations used within this Detailed Operational Plan document.

Table 14 lists a Glossary of Terms used within this Detailed Operational Plan document.

Additional Decennial terminology can be found on the Census Intranet under the [TBD] portal.

Table 13: Acronyms and Abbreviations List

Acronym	Meaning
ADDCP	Associate Director for Decennial Census Programs
AdRec	Administrative Records
AR	Administrative Records
BCU	Basic Collection Unit
BPM	Business Process Model
BPMN	Business Process Modeling Notation
CAES	Concurrent Analysis and Estimation System
CaRDS	Control and Response Data System
CCM	Census Coverage Measurement
CEF	Census Edited File
CI	Coverage Improvement
CMM	Coverage Measurement Matching operation
CQA	Census Questionnaire Assistance operation
CRO	Count Review operation
CSR	Customer Service Representative
CUF	Census Unedited File
DCMD	Decennial Census Management Division
DOP	Detailed Operational Plan
DRF	Decennial Response File
DRIS	Decennial Response Integration System
DRPS	Decennial Response Processing System
DSSD	Decennial Statistical Studies Division

EAE	Evaluation and Experiments operation
ECaSE	Enterprise Census and Survey Enabling
ETL	Enumeration at Transitory Locations operation
FLDI	Field Infrastructure operation
FPD	Forms Printing and Distribution operation
GDI	Geographic Data Integration
GDP	Geographic Data Processing
GEO	Geography Division
GEOP	Geographic Programs operation
GQ	Group Quarters operation
HH	Household
HQ	Headquarters
HU	Housing Unit
iCADE	integrated Computer Assisted Data Entry system
IDEF0	A functional modeling method
IE	Information Exchange
IMB	Intelligent Mail Barcode
IOD	Integrated Operations Diagram
IPT	Integrated Project Team
IPTS	Intelligent Mail Barcode Postal Tracking System
ISR	Internet Self-Response operation
LQ	Living Quarters
MAF	Master Address File
MAFID	Master Address File Identifier
MDF	Microdata Detail File
NID	Non-ID Processing operation
NPC	National Processing Center
NRFU	Nonresponse Followup operation
OC	Operational Control

OCS	Operational Control System
PDC	Paper Data Capture
PEARSIS	Production Environment for Administrative Record Staging, Integration and Storage
PM	Program Management operation
PMGB	Portfolio Management Governing Board
POP	Population Division
PSA	Primary Selection Algorithm
QC	Quality Control
QCM	Quality Control Management
QOO	Quality Outbound Operation
RA	Remote Alaska
RDI	Response Data Integration
RI	Reinterview
RPO	Response Processing Operation
RPS	Response Processing System
SDF	Sample Delivery File
SEHSD	Social, Economic and Housing Statistics Division
SMaRCS	Sampling, Matching, Reviewing, and Coding System
SPC	Security, Privacy, Confidentiality operation
SR	Self-Response
SRV	Self Reported Vacant
TEA	Type of Enumeration Area
TIGER	Topologically Integrated Geographic Encoding and Referencing system
TL	Transient Location
UC	Universe Creation
UCM	Universe Control and Management
UE	Update Enumerate
UM	Universe Management
USPS	United States Postal Service

UTS	Unified Tracking System
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Table 14: Glossary of Terms

Term	Meaning
Geocoding	Provide geographical coordinates corresponding to a location.

Appendix B – References

Appendix B lists the documents or other resources used during the development of this Detailed Operational Plan document.

U.S. Census Bureau (2016), “2020 Census Operational Plan,” Version 2.0, October 28, 2016.

U.S. Census Bureau (2016), “Operational Assessment Content Guidelines for the 2018 End-to-End Census Test and the 2020 Census,” Draft, May 10, 2016.

Appendix C – Activity Tree for Response Processing Operation (RPO)

This appendix presents the Activity Tree for the RPO. An Activity Tree uses an outline structure to reflect the decomposition of the major operational activities in the operation. Each activity is numbered according to its position in the outline. For example, for the current operation numbered “19,” the first activity would be numbered 19-1. Subactivities under this activity would be numbered sequentially, starting again with the number one. For example, the first subactivity under the first activity would be numbered 19-1.1 the second subactivity as 19-1.2. The second activity would be numbered 19-2, and so on.

RPO Activity Tree

For RPO Pre-Data Collection Phase:

RPO Activity Tree:

19-1 RPO Pre-Data Collection Phase

- 19-1.1 Initial Enumeration Universe Creation and Management
 - 19-1.1.1 Decennial Universe Inputs
 - 19-1.1.1.1 Create Decennial Requirements for Enumeration Universe
 - 19-1.1.1.2 Receive Universe Input Data
 - 19-1.1.2 Decennial Enumeration Universe Creation and Delivery
 - 19-1.1.2.1 Create Initial Enumeration Universe
 - 19-1.1.2.2 Provide Initial Enumeration Universe to RPO Universe Management (UM)
 - 19-1.1.3 Pre-Data Collection Housing Unit Self-Response (HU SR) Paper Mailing Support

For RPO Data Collection Phase:

RPO Activity Tree:

19-2 RPO Data Collection Phase

- 19-2.1 Initial Enumeration Universe/Workload Generation
 - 19-2.1.1 Generate Initial Enumeration Universe Case List to HU Self-Response Operations
 - 19-2.1.2 Generate Initial UE Universe/Workload to UE Operational Control (OC)
 - 19-2.1.3 Generate Initial GQ Universe/Workload to GQ Advance Contact Operational Control (OC)
 - 19-2.1.4 Generate Initial ETL Universe/Workload for ETL Advance Contact Operational Control (OC)

- 19-2.2 RPO Mode Management
 - 19-2.2.1 Support Housing Unit Self-Response (HU SR) Data Collection and Nonresponse Followup (NRFU)
 - 19-2.2.1.1 Distribute HU SR Universe Case Information
 - 19-2.2.1.2 Receive HU Self-Response Status and Response Data
 - 19-2.2.1.3 Manage HU Self-Response and NRFU Response Results
 - 19-2.2.1.4 Provide HU Self-Response Data Collection Paper Mailing Support
 - 19-2.2.1.5 Provide Nonresponse Followup (NRFU) Support
 - 19-2.2.1.5.1 Create Initial NRFU Universes and Apply AdRec Modeling Results
 - 19-2.2.1.5.1.1 Create Early NRFU Universe
 - 19-2.2.1.5.1.2 Create Initial Production NRFU Universe (incl. FV Workload)
 - 19-2.2.1.5.2 Provide NRFU Data Collection Support
 - 19-2.2.1.5.2.1 Receive NRFU Response and Status Data
 - 19-2.2.1.5.2.2 Manage NRFU Response Results
 - 19-2.2.1.5.2.2.1 Process NRFU Response Results
 - 19-2.2.1.5.2.2.2 Perform NRFU Reinterview Quality Control Support
 - 19-2.2.1.5.3 Manage Daily NRFU Universe/Workload Updates
 - 19-2.2.2 Support Update Enumerate (UE) Data Collection
 - 19-2.2.2.1 Distribute UE Universe/Workload Information
 - 19-2.2.2.2 Receive UE Listing and UE Response/Status Data
 - 19-2.2.2.3 Manage UE Listing Results
 - 19-2.2.2.3.1 Perform UE Listing QC Support
 - 19-2.2.2.3.1.1 Select Listing QC Sample for UE Field Listers
 - 19-2.2.2.3.1.2 Provide Listing QC Workload to UE Operation (NPC and Field)
 - 19-2.2.2.3.1.3 Receive Listing QC Results
 - 19-2.2.2.3.1.4 Support Listing QC Anomaly Resolution Activities
 - 19-2.2.2.3.2 Process UE Listing Results
 - 19-2.2.2.4 Manage UE Response Results
 - 19-2.2.2.4.1 Process UE Response Results
 - 19-2.2.2.4.2 Perform UE Reinterview Quality Control Support
 - 19-2.2.3 Support Group Quarters (GQ) Data Collection
 - 19-2.2.3.1 Provide GQ Advance Contact Data Support
 - 19-2.2.3.2 Distribute GQ Enumeration Universe/Workload Information

- 19-2.2.3.3 Receive GQ Enumeration Response and Status Data
- 19-2.2.3.4 Manage GQ Enumeration Response Results
 - 19-2.2.3.4.1 Process GQ Response Results
 - 19-2.2.3.4.2 Perform GQ Reinterview Quality Control Support
- 19-2.2.3.5 Provide Maritime GQ Enumeration Data Collection Paper Mailing Support
- 19-2.2.4 Support Enumeration at Transitory Locations (ETL) Data Collection
 - 19-2.2.4.1 Provide ETL Advance Contact Data Support
 - 19-2.2.3.2 Distribute ETL Enumeration Universe/Workload Information
 - 19-2.2.4.3 Receive ETL Response and Status Data
 - 19-2.2.4.4 Manage ETL Response Results
 - 19-2.2.4.4.1 Process ETL Response Results
 - 19-2.2.4.4.2 Perform ETL Reinterview Quality Control Support
- 19-2.3 RPO Enumeration Universe Management and Data Collection Phase Processing
 - 19-2.3.1 Manage Daily RPO Enumeration Universe/Workload Updates
 - 19-2.3.1.1 Manage Enumeration Universe Updates
 - 19-2.3.1.2 Manage UE Universe/Workload Updates
 - 19-2.3.1.3 Manage GQ Universe/Workload Updates
 - 19-2.3.1.4 Manage ETL Universe/Workload Updates
 - 19-2.3.2 Provide Data to HQ Ops
 - 19-2.3.3 Perform Data Collection Phase Processing Work
 - 19-2.3.3.1 Perform Data Collection Phase Response Data Processing
 - 19-2.3.3.2 Perform RPO Fraud Detection/Response Validation